CLINICAL INTERVENTIONS IN AUSTRALIAN COMMUNITY PHARMACIES

Volume 3 (Appendices)

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9 APPENDICES

9.1 APPENDIX 1: PCNE DRP CLASSIFICATION SYSTEM

PCNE Classification for Drug related problems

(revised 01-05-06 vm)
V5.01

Contact: jwfvmil@planet.nl

This classification should be referred to as 'The PCNE Classification V 5.01'

Introduction

During the working conference of the Pharmaceutical Care Network Europe in January 1999, a classification scheme was constructed for drug related problems (DRPs). The classification is part of a total set of instruments. The set consists of the classification scheme, reporting forms and cases for training or validation. The classification system is validated and adapted regularly. The current version is V5. It is compatible with previous versions although new items have been added. The numbering of existing items has not been changed.
The classification is for use in research into the nature, prevalence, and incidence of DRPs and also as a process indicator in experimental studies of Pharmaceutical Care outcomes. It is also meant to help health care professionals to document DRP-information in the pharmaceutical care process.
The hierarchical classification is based upon similar work in the field, but it differs from existing systems because it separates the problems from the causes. The following definition is the basis for the classification:

A Drug-Related Problem is an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes.

The basic classification now has 6 primary domains for problems, 6 primary domains for causes and 5 primary domains for Interventions.
However, on a more detailed level there are 21 grouped sub domains for problems, 33 grouped sub domains for causes and 17 grouped sub domains for interventions. Those sub domains can be regarded as explanatory for the principal domains.
In 2003 a scale has been added to indicate if or to what extend the problem has been solved.

Zuidlaren, May 2006

N.B. In this version 5.01 an extra Cause is added: *C4.10 Patient takes food that interacts with drugs* and an extra Outcome *O0.0 Outcome not known.*

PCNE Classification scheme for Drug-Related Problems V5.01 -Page 1

The Basic Classification

	Code V5.01	Primary domains
Problems	**P1**	**Adverse reaction(s)** Patient suffers from an adverse drug event
	P2	**Drug Choice Problem** Patient gets or is going to get a wrong (or no drug) drug for his/her disease and/or condition
	P3	**Dosing problem** Patient gets more or less than the amount of drug he/she requires
	P4	**Drug Use Problem** Wrong or no drug taken/administered
	P5	**Interactions** There is a manifest or potential drug-drug or drug-food interaction
	P6	**Other**
Causes	**C1**	**Drug/Dose Selection** The cause of the DRP can be related to the selection of the drug and/or dosage schedule
	C2	**Drug Use Process** The cause of the DRP can be related to the way the patient uses the drug, in spite of proper dosage instructions (on the label)
	C3	**Information** The cause of the DRP can be related to a lack or misinterpretation of information
	C4	**Patient/Psychological** The cause of the DRP can be related to the personality or behaviour of the patient.
	C5	**(Pharmacy) Logistics** The cause of the DRP can be related to the logistics of the prescribing or dispensing mechanism
	C6	**Other**
Interventions	**I0**	**No intervention**
	I1	**At prescriber level**
	I2	**At patient (or carer) level**
	I3	**At drug level**
	I4	**Other**
Outcome of intervention	**O0**	**Outcome intervention unknown**
	O1	**Problem totally solved**
	O2	**Problem partially solved**
	O3	**Problem not solved**

PCNE Classification scheme for Drug-Related Problems V5.01 -Page 2

The Detailed Classification-1

The Problems

Each problem should be coded separately, but there may be more causes or interventions to one problem.

Primary Domain	Code V5.01	Problem
1. Adverse reactions Patient suffers from an adverse drug event	**P1.1**	Side effect suffered (non-allergic)
	P1.2	Side effect suffered (allergic)
	P1.3	Toxic effects suffered
2. Drug choice problem Patient gets or is going to get a wrong (or no drug) drug for his/her disease and/or condition	**P2.1**	Inappropriate drug (not most appropriate for indication)
	P2.2	Inappropriate drug form (not most appropriate for indication)
	P2.3	Inappropriate duplication of therapeutic group or active ingredient
	P2.4	Contra-indication for drug (incl. Pregnancy/breast feeding)
	P2.5	No clear indication for drug use
	P2.6	*No drug prescribed but clear indication*
3. Dosing problem Patient gets more or less than the amount of drug he/she requires	**P3.1**	Drug dose too low or dosage regime not frequent enough
	P3.2	Drug dose too high or dosage regime too frequent
	P3.3	Duration of treatment too short
	P3.4	Duration of treatment too long
4. Drug use problem Wrong or no drug taken/administered	**P4.1**	Drug not taken/administered at all
	P4.2	Wrong drug taken/administered
5. Interactions There is a manifest or potential drug-drug or drug-food interaction	**P5.1**	Potential interaction
	P5.2	Manifest interaction
6. Others	**P6.1**	Patient dissatisfied with therapy despite taking drug(s) correctly
	P6.2	Insufficient awareness of health and diseases (possibly leading to future problems)
	P6.3	Unclear complaints. Further clarification necessary
	P6.4	Therapy failure (reason unknown)

PCNE Classification scheme for Drug Related Problems V5.01 -Page 3

The Detailed Classification-2

The Causes

N.B. One problem can have more causes

Primary Domain	Code V5.01	Cause
1. Drug/Dose selection The cause of the DRP is related to the selection of the drug and/or dosage schedule	C1.1	Inappropriate drug selection
	C1.2	Inappropriate dosage selection
	C1.3	More cost-effective drug available
	C1.4	Pharmacokinetic problems, incl. ageing/deterioration in organ function and interactions
	C1.5	Synergistic/preventive drug required and not given
	C1.6	Deterioration/improvement of disease state
	C1.7	New symptom or indication revealed/presented
	C1.8	Manifest side effect, no other cause
2. Drug use process The cause of the DRP can be related to the way the patient uses the drug, in spite of proper dosage instructions (on the label)	C2.1	Inappropriate timing of administration and/or dosing intervals
	C2.2	Drug underused/ under-administered
	C2.3	Drug overused/ over-administered
	C2.4	Therapeutic drug level not monitored
	C2.5	Drug abused (unregulated overuse)
	C2.6	Patient unable to use drug/form as directed
3. Information The cause of the DRP can be related to a lack or misinterpretation of information	C3.1	Instructions for use/taking not known
	C3.2	Patient unaware of reason for drug treatment
	C3.3	Patient has difficulties reading/understanding Patient Information Form/Leaflet
	C3.4	Patient unable to understand local language
	C3.5	Lack of communication between healthcare professionals
4. Patient/Psychological The cause of the DRP can be related to the personality or behaviour of the patient.	C4.1	Patient forgets to use/take drug
	C4.2	Patient has concerns with drugs
	C4.3	Patent suspects side-effect
	C4.4	Patient unwilling to carry financial costs
	C4.5	Patient unwilling to bother physician
	C4.6	Patient unwilling to change drugs
	C4.7	Patient unwilling to adapt life-style
	C4.8	Burden of therapy
	C4.9	Treatment not in line with health beliefs
	C4.10	Patient takes food that interacts with drugs
5. Logistics The cause of the DRP can be related to the logistics of the prescribing or dispensing mechanism	C5.1	Prescribed drug not available (anymore)
	C5.2	Prescribing error (only in case of slip of the pen)
	C5.3	Dispensing error (wrong drug or dose dispensed)
6. Others	C6.1	Other cause; specify
	C6.2	No obvious cause

PCNE Classification scheme for Drug-Related Problems V5.01 -Page 4

The Detailed Classification-3

The Interventions

N.B. One problem can lead to more interventions

Primary Domain	Code V5.01	Intervention
No intervention	**I0.0**	No Intervention
1. At prescriber level	**I1.1**	Prescriber informed only
	I1.2	Prescriber asked for information
	I1.3	Intervention proposed, **approved** by Prescriber
	I1.4	Intervention proposed, **not approved** by Prescriber
	I1.5	Intervention proposed, outcome unknown
2. At patient/carer level	**I2.1**	Patient (medication) counselling
	I2.2	Written information provided only
	I2.3	Patient referred to prescriber
	I2.4	Spoken to family member/caregiver
3. At drug level	**I3.1**	Drug changed to ….
	I3.2	Dosage changed to ….
	I3.3	Formulation changed to …..
	I3.4	Instructions for use changed to …..
	I3.5	Drug stopped
	I3.6	New drug started
4. Other intervention or activity	**I4.1**	Other intervention (specify)
	I4.2	Side effect reported to authorities

Outcome of intervention

N.B. One problem (or the combination of interventions) can only lead to one level of solving the problem

Primary Domain	Code V5.01	Outcome of intervention
0. Not known	**O0.0**	Outcome intervention not known
1. Solved	**O1.0**	Problem totally solved
2. Partially solved	**O2.0**	Problem partially solved
3. Not solved	**O3.1**	Problem not solved, lack of cooperation of patient
	O3.2	Problem not solved, lack of cooperation of prescriber
	O3.3	Problem not solved, intervention not effective
	O3.4	No need or possibility to solve problem

PCNE Classification for Drug related problems

Help

(revised 01-02-06 vm)
V5.01

Contact: jwfvmil@planet.nl

This help document is related to 'The PCNE Classification V 5.01'

Finding or selecting codes in the PCNE classification

> ***A Drug-Related Problem is an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes.***

For the use of the PCNE classification it is important to separate the real problem (that affects or is going to affect the outcome) from its cause. Often such problems are caused by a certain type of error e.g. prescribing errors or drug-use or administration errors. But there might be no error at all involved. Also, a medication error does not necessarily have to lead to a drug-related problem.

The cause is usually the behaviour that has caused the problem. A cause or a combination of causes and a problem together, will usually lead to one or more interventions.
The classification can be used in two ways, depending on the level of information needed.

- If only the main domains are used, there is in general enough information for research purposed
- If the system is used for documenting pharmaceutical care activities in practice, the sub domains can be used.

Problem section

Basically, the problem is defined as 'the expected or unexpected event or circumstance that is, or might be wrong, in therapy with medicines'. (the P-codes)
There are 6 major domains in the problem section. The following descriptions could help to find the right problem domain:

Patient suffers or is going to suffer from an adverse drug event such as a side effect or toxicity. This can be prescribing error, but unexpected ADRs may also occur at normal dosages of a well selected drug.	**See P1**
Patient gets or is going to get a wrong (or no drug) drug for his/her disease and/or condition. This is usually a prescribing error.	**See P2**
Patient has or gets the right drug, but gets more or less than the amount of drug than he/she requires. This can be a prescribing error but also a drug use error.	**See P3**
Patient uses or gets administered the wrong drug or no drug. This can be drug use or administration errors but also a filling error in the pharmacy.	**See P4**
There is a manifest or potential drug-drug or drug-food interaction. This is a form of prescribing or drug-use error.	**See P5**
Any other problem	**See P6**

Causes section

Each problem has a cause. The cause is the action (or lack of action) that leads up to the occurrence of a potential or real problem. There may be more causes for a problem. (The C-code)

The cause of the DRP can be related to the selection of the drug and/or dosage schedule	**See C1**
The cause of the DRP can be related to the way the patient uses the drug, in spite of proper dosage instructions (on the label or in the information leaflet)	**See C2**
The cause of the DRP can be related to a lack or misinterpretation of information by the patient	**See C3**
The cause of the DRP can be related to the personality or behaviour of the patient.	**See C4**
The cause of the DRP can be related to the logistics of the prescribing or dispensing mechanism	**See C5**
Any other cause	**See C6**

Intervention section

The problem will usually lead to one or more in interventions to correct the cause of the problem. (The I-code)

There is or can be no intervention	**See I0**
Intervention through the prescriber	**See I1**
Intervention through the patient, his carers or relatives	**See I2**
Intervention directly by changing drug or indicating change in drug use	**See I3**
Other intervention	**See I4**

Outcome section

For evaluation purposes it is desirable to indicate if the problem has been solved by doing the intervention (the O-code). This scale has been added in V5 (2003)

Problem totally solved	**See O1**
Problem partially solved	**See O2**
Problem not solved	**See O3**

9.2 Appendix 2: Pilot Study Pharmacy Instruction Manual

Pilot Study

Instructions and Help Manual

PHOENIX COMPUTER SYSTEMS

School of Pharmacy

This project is funded by the Commonwealth Department of Health and Ageing as part of the Third Community Pharmacy Agreement. The Pharmacy Guild of Australia manages the Third Community Pharmacy Agreement Research and Development Grants (CPA R&D Grants) Program.

Project web site: www.promise.id.au

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Background Information

Detection and resolution of drug related problems has been demonstrated in hospital and medication review settings. However, very little is known about detection and resolution of drug related problems (interventions) in community pharmacy practice.

At present, the documentation of cognitive services and medication incidents in community pharmacy practice in Australia is virtually non-existent, yet quality care cannot be provided without complete documentation. The future of our profession lies in our ability to document the benefit of pharmaceutical care for our patients.

This project is a Pharmacy Guild tendered research project, funded by a Third Community Pharmacy Agreement Research and Development (CPA R&D) grant. This project is to be completed in two phases;

- Phase 1: to develop and build an e-record for the documentation of community pharmacists clinical services, and test this with two types of dispensing software

- Phase 2: to determine the nature and frequency of these clinical services, and to determine the potential benefit of the activities in economic and health benefit terms.

Being able to document the frequency and nature of such clinical activities over a significant period of time and then being able to assess these activities for economic and patient focused benefit would provide extremely useful information which would inform decisions at many organisational levels. This pilot study is part of the testing of the systems developed in Phase 1.

Some members of the project team have previously developed and evaluated a convenient, computerised process for the recording of medication incidents and community pharmacists' cognitive services. This system was devised after an extensive literature evaluation and it underwent several pilot phases with many iterative modifications. It was initially developed for incorporation into the Rex system (Phoenix Corp), and this version of the intervention recording system is now part of Rex dispensing system.

This project aims to build upon the team's existing research to establish a sustainable, nationwide system for the ongoing collection of information from community pharmacies identifying incidents related to medication safety and subsequent clinical interventions by community pharmacists.

Phase 1 so far...

The first major task was the production of a system for appropriately classifying interventions and related pharmacists' cognitive services. With the guidance of both a local reference group and national panel of experts, there has been a comprehensive review of the previous definitions and classification of medication incidents, and of similar medication-related reporting systems from overseas. This review process lead to the development of the D.O.C.U.M.E.N.T. system. The current version of the classification scheme maintains its original parameters in recording the type (and subtype) of drug related problem, actions to investigate the problem, recommendations to resolve the problem, acceptance of pharmacist's resolution of the problem, clinical significance (severity), and a free text notes area. To gain an insight into the cost of generating the intervention to the pharmacist, a 'time' field has been added to the record.

For the classifications to be scientifically valid, a large number of people need to have used the system, and to facilitate this, we have developed a web-based simulation. Twenty scenarios have been written and interested participants, after recording some basic demographic data, are able to interpret the scenarios and classify the interventions required as they see fit. The simulation is available from the project's website www.promise.id.au which is also accessible from the University of Tasmania Pharmacy QUM group web portal www.medsafety.com.au. To encourage wide participation, two participants will be randomly selected to receive a prize of $1000. Also, CPE points will be awarded to all participants who complete the presented cases. The results of this validation exercise will be used as a further input into the final structure of the intervention classification scheme recommended at the end of this project, and as a training process for all pharmacists taking part in the pilot study.

Feedback from community pharmacists involved in the previous project indicated that the recording system had to be as streamlined as possible for it to be a realistic addition to their daily work practices. The record should have sufficient information for other pharmacists to understand the problem and outcome, and therefore be able to follow-up on the problem if necessary. The system developed has taken all these considerations into account.

The second major task in Phase 1 was developing the mechanism for recording, collating and presenting the data. The intervention data is de-identified and encrypted and then sent via the Internet to a central repository which is located on a secure server at the Tasmanian School of Pharmacy. Data files can then be downloaded and the details of the provision of clinical services can be easily collated and summarised, at a local, state and national level.

Your role in the Pilot Study

As part of the pilot phase, we ask you to document the clinical services and interventions you perform during your daily duties. We are not asking you to perform any extra duties, but just to record those activities that you normally do. This does not mean documenting every time you reinforce the dosage details of an antibiotic to a patient, or when you simply counsel on the appropriate use of a product. Examples are given later in this document. Extensive Help Notes have been incorporated into the program, and can be accessed when recording an intervention or clinical service.

The pilot study will be conducted in seven test pharmacies. Four days of which will include assistance by the observer team. This will enable each pharmacist to become familiar with the system in an environment where immediate help is available. Hopefully this will minimise the effect of the learning phase on pharmacist productivity. Pharmacists from each test pharmacy will be able to provide feedback on the useability and interactivity of the system. The data communications and repository functionalities of the system will be tested in a 'live' scenario.

The Observation Team

The Observation Team consists of three pharmacists who currently work at the university in a research capacity; Helen Kruup, Rachel Dienaar and Kim Fitzmaurice. The role of the observers will be quite involved. They are there to assist you to detect and record relevant clinical activities. They will also be attempting to keep track of script volume and work load so that these factors can be utilised in the statistical analysis of the collected data. To enable all of these activities to occur, the observers will need to be working closely with the pharmacist and within the dispensary.

All of the observers are current practising community pharmacists, and therefore understand the importance of discretion and uninterrupted work-flow. They will endeavour to have minimal impact on your normal activities, but still assist as much as possible.

What is an intervention or clinical service?

A pharmacist's responsibilities include identifying, resolving and preventing health problems, in particular drug related problems. In different studies and research projects, various definitions of adverse drug reactions, drug related problems and interventions have been used. For example:

> "A drug therapy problem is any undesirable event experienced by the patient that involves or is suspected to involve drug therapy and that actually or potentially interferes with a desired patient outcome." [1]
>
> [1]Cipolle RJ, Strand LM, Morley PC. A reimbursement system for pharmaceutical care *Pharmaceutical care practice.* New York: McGraw-Hill, 1998:267-96.

We would like to push the boundaries of recordable events beyond just 'drug related problems'. In the past, similar studies have restricted recordable events to drug related problems, or actual adverse events. These boundaries do not allow for the recording of potential events or near misses. Nor does it allow for the recording of such things as blood pressure or blood sugar monitoring, which are becoming more commonplace in community pharmacy. These professional services are time consuming, and may involve financial outlay. They have also been shown to be valuable services in the community pharmacy setting.

A clinical service encompasses many aspects of a pharmacist's activities.

- Identifying Drug Related Problem and Adverse Drug Reactions
- Health management advice (eg smoking cessation, weight loss plan)
- Working in conjunction with the entire health care team to provide the best possible outcome for patients. (eg care plan meeting)
- Monitoring response to therapy. (eg monitoring BP/weight/temperature)

So, an overall definition of the types of activities that are recordable for this research project is:

> **"Any professional activity directed towards improving health outcomes or the quality use of medicines, or the provision of health-related information."**

How do I document an intervention or clinical service?

This process is fully integrated with your dispensing program and is very similar to the original intervention program. Much of the information that needs to be recorded is automatically transferred to the intervention record, thereby minimising the amount of data that you need to input, and also the amount of time taken.

The recording procedure has 8 stages or components of data entry:

Key	Category	Explanation	Options
F1	SCRIPT DETAILS	Name of patient, prescriber, date, drug name	
F2	CATEGORY/TYPE	Categorise the intervention via the root cause of the need to perform the intervention.	See table 1 and Appendix 1
F3	ACTION	What did you do to deal with the problem? (there may be more than one action)	See table 2 and Appendix 1
F4	RECOMMENDATION	What did you recommend as a solution to the problem? (there may be more than one recommendation)	See table 3 and Appendix 1
F5	OUTCOME	Did your intervention actually result in a change of therapy, or was the suggestion deemed not relevant in this case?	* Unknown * Accepted * Partially accepted * Not accepted
F6	SIGNIFICANCE	If you had not intervened, what was the possible/potential outcome.	* Nil * Low * Mild * Moderate * High
F7	NOTES	This section is for you to add free text notes, to more thoroughly explain your action(s) or the reason(s) for them.	
F7	TIME	How long did it take you to perform the clinical activity?	

It has been set up in this way to enable the collection of the most complete data possible, with the minimum amount of data entry. This process is expanded upon further in the following pages.

Category (Type)		Sub-Type	Subtype Code
D	Drug selection	Duplication	D1
		Drug Interaction	D2
		Wrong drug	D3
		Wrong dosage form	D4
		Previous ADR/allergy	D5
		Other Drug selection problem (specify)	D0
O	Over- or under-dose prescribed	Dose too high	O1
		Dose too low prescribed	O2
		Incorrect frequency	O3
		Other Dose related Problem (specify)	O0
C	Compliance	Potential drug abuse	C1
		Taking too little	C2
		Taking too much	C3
		Difficulty using dosage form	C4
		Other Compliance problem(specify)	C0
U	Untreated indications	Condition not adequately treated	U1
		Preventive therapy required	U2
		Other Untreated indication problem (specify)	U0
M	Monitoring required	Drug levels	M1
		Laboratory Monitoring	M2
		Non-Laboratory monitoring	M3
		Other Monitoring problem (Specify)	M0
E	Education or information	Patient drug information requests	E1
		Confusion about therapy or condition	E2
		Demonstration of device	E3
		Disease management or advice	E4
		Other Education/Information problem (Specify)	E0
N	Non-clinical	Not sub-classified	N0
T	Toxicity or Adverse reaction	Caused by dose too high	T1
		Caused by drug interaction	T2
		Other Toxicity problem (Specify)	T0

Table 1: Category of clinical service

Table 2: Actions to Investigate the Problem

Actions	What did the pharmacist do in order to sort out the problem? *Note 1: multiple actions possible for one situation* *Note 2: Each of these actions will have a time value allocated to them*	Action	Code
		Investigation: Written material	A1
		Investigation: Software	A2
		Investigation: Internet	A3
		Contacted NPS or State Drug Information Service	A4
		Investigation: Other (eg. consulted other pharmacist)(specify)	A5
		Contacted prescriber	A6
		Discussion with patient/carer	A7
		Corrected without discussion	A8
		Other Action (specify)	A0

Table 3: Recommendations to Resolve the Problem

Recommendations	What did the pharmacist recommend as a solution to the problem? *Note 1: multiple recommendations possible for one situation*	Recommendation	Code
		Education/counselling session	R1
		Dose change	R2
		Drug change	R3
		Drug cessation	R4
		Drug formulation change	R5
		Monitoring: non-laboratory	R6
		Drug addition	R7
		Drug brand change	R8
		Dose frequency/schedule change	R9
		Refer to prescriber	R10
		Refer to hospital	R11
		Monitoring: Laboratory test	R12
		Refer for medication review	R13
		Commence dose administration aid	R14
		No recommendation necessary	R0
		Other recommendation (specify)	R15

Table 4: Acceptance of Pharmacist's Resolution of the Problem

Outcomes	Did the clinical activity actually result in a change of management, or was the suggestion deemed not relevant in this case? *Note 1: If at the time of clinical activity the outcome is not known, the incident is flagged for later addition of the outcome.* That is: **Was the pharmacist's resolution implemented?**	Unknown Accepted Partially Accepted Not accepted

Table 5: Clinical Significance of the Problem

Significance **(to Patient)**	If the pharmacist had not intervened/provided a clinical activity, what was the possible/potential outcome if therapy had continued? (a subjective rating, predicting the clinical severity if action was not taken). That is: **How serious was/could have been the problem?** *Note 1: Situations rated as high (S4) will require additional information to be entered into a notes field*	**Significance**	**Code**
		Nil (admin only)	S0
		Low (cost saving to patient or information only)	S1
		Mild (Improvement in therapy or QOL)	S2
		Moderate (required/potentially prevented GP visit)	S3
		High (required/potentially prevented hospital admission/death)	S4

Documenting an Intervention of Clinical Service

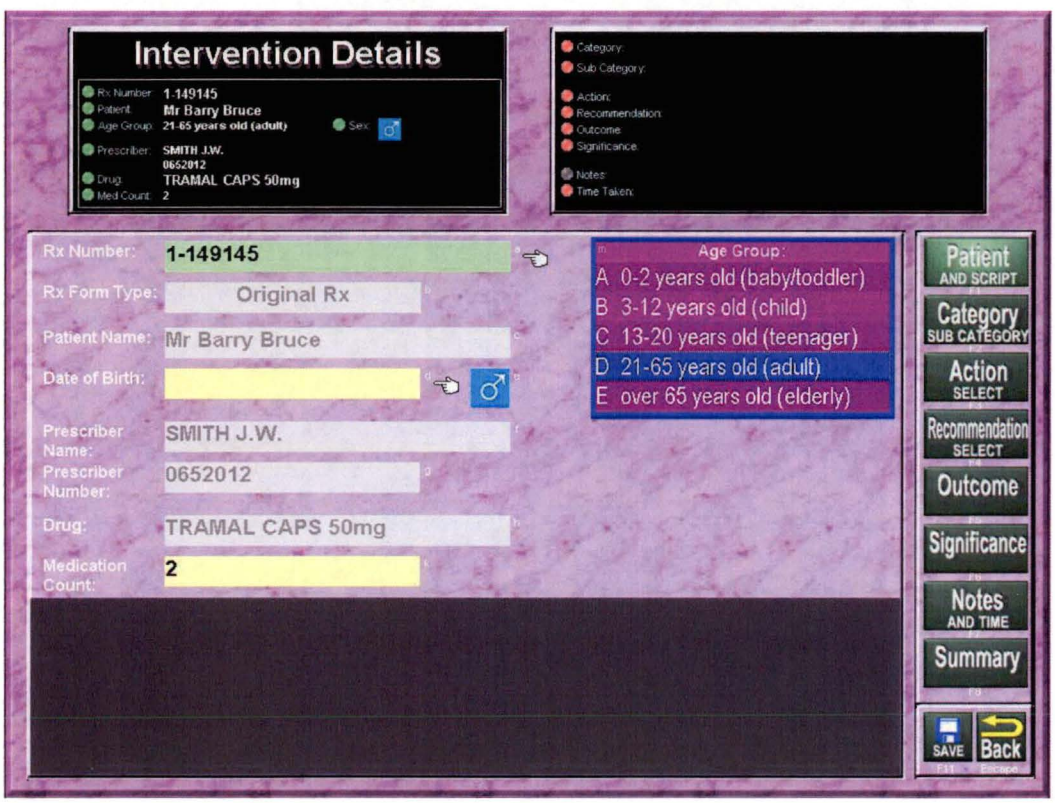
In this screen, information on the left hand side is imported from the dispensing system when the intervention is related to a prescription. If the clinical activity is not related to a the prescription, the information needs to be entered manually.

On the top left-hand side of the screen, information relating to the demographics of the patient (once selected) appears and is carried forward through subsequent screens.

On the top right-hand side of the screen is a series of traffic lights which change from red to green when the particular information has been entered.

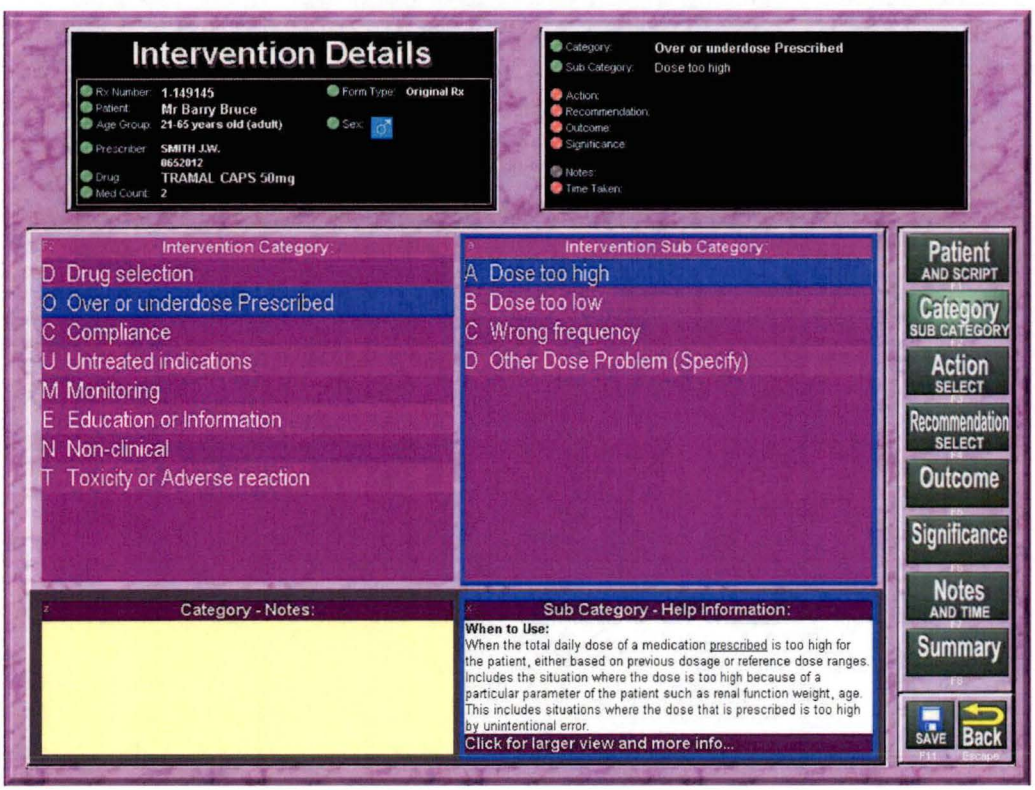
Patient details screen

This screen shot shows how the information from the dispensing system has been incorporated into the intervention recording data file. Note the information transfer that has occurred to save you from re-entering the patient's demographic details and the script details. This information now appears on the top left corner of the screen.



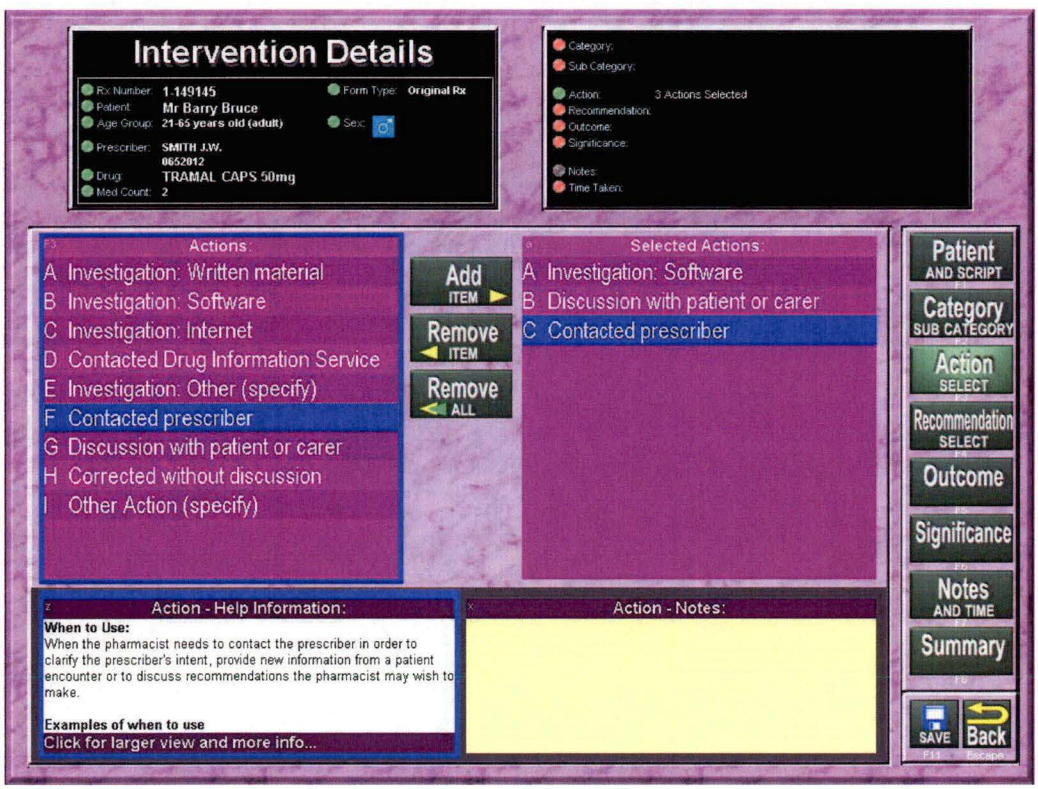
Category Screen

On this screen the main category or type of clinical activity is determined, with the sub-type on the right-hand side panel. Note; the Help Information screen which is available for each of the codes. This can be enlarged for easy viewing by clicking on that section.



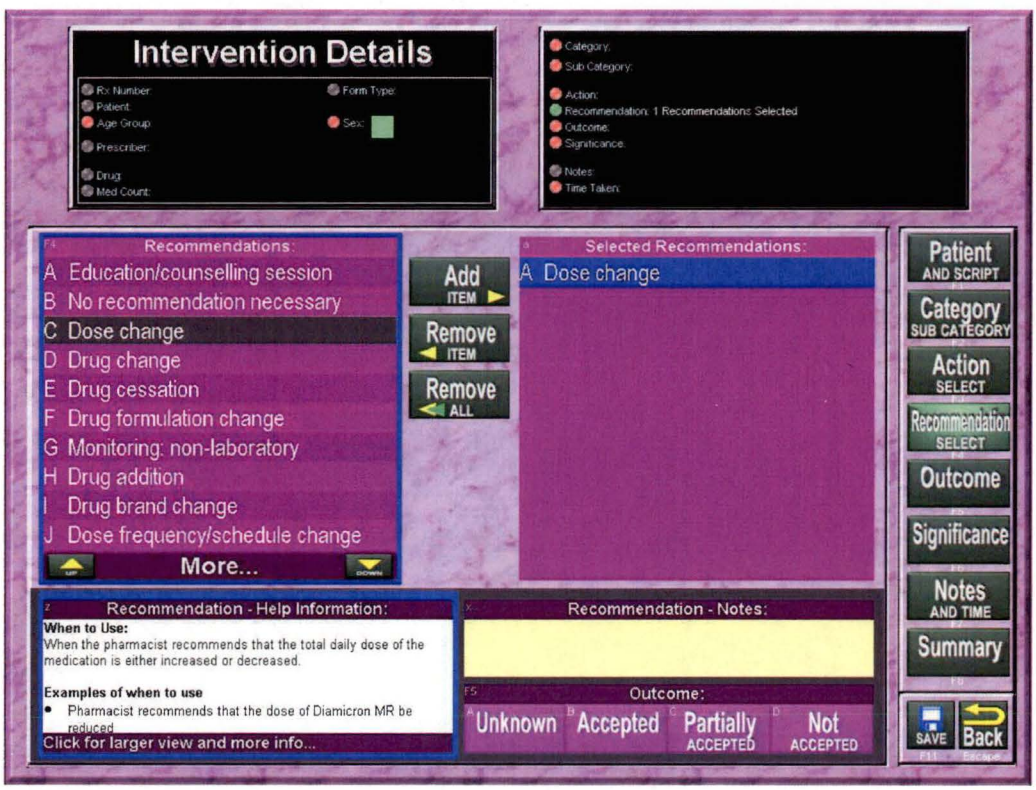
Action screen

In the Action screen below, the actions possible in relation to a clinical activity need to be selected. Actions are to be entered in the order that they occur during the intervention process. Multiple actions are possible for each clinical activity, so the selection process allows for multiple selections to be made. The same action may be undertaken more than once in a particular clinical activity.



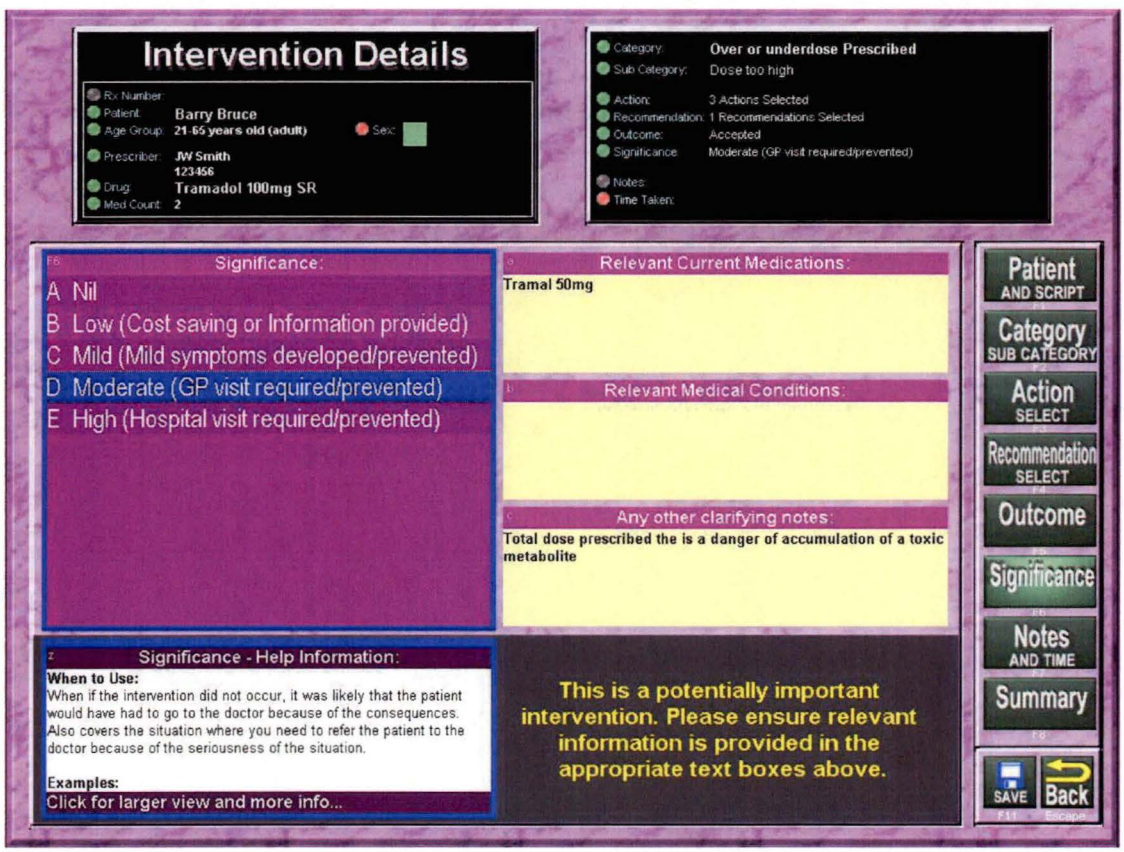
Recommendations and Outcome screen

This screen is used to document the recommendations that you make to resolve the problem. Multiple recommendations can be documented, although it is not possible to select the same recommendation more than once.



The outcome of the intervention is included on this same screen and is related to a *composite* outcome for *all* of the recommendations made.

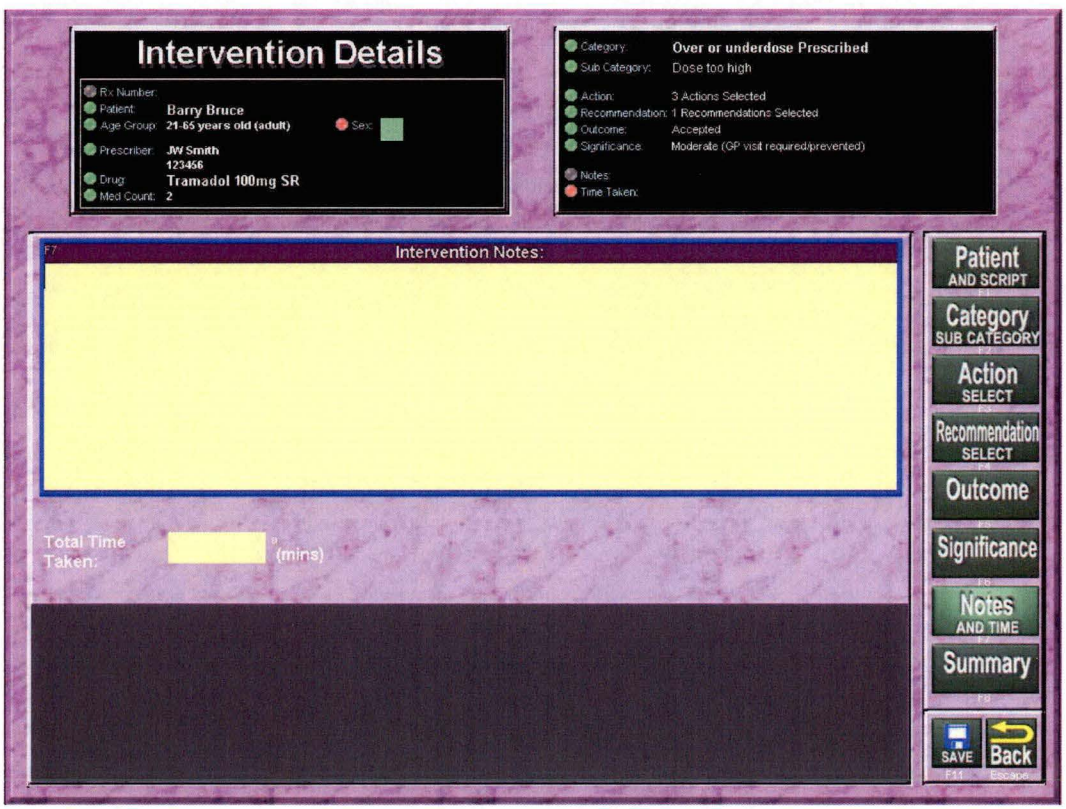
Significance Screen



The clinical significance screen, allows the selection of the appropriate level of clinical significance for the intervention. The clinical services that are rated as moderate or high will require additional information to be collected to enable adequate examination of the activity by an external clinical panel. On the interface, a reminder of the importance of this additional information is presented when either moderate or high clinical significance is selected.

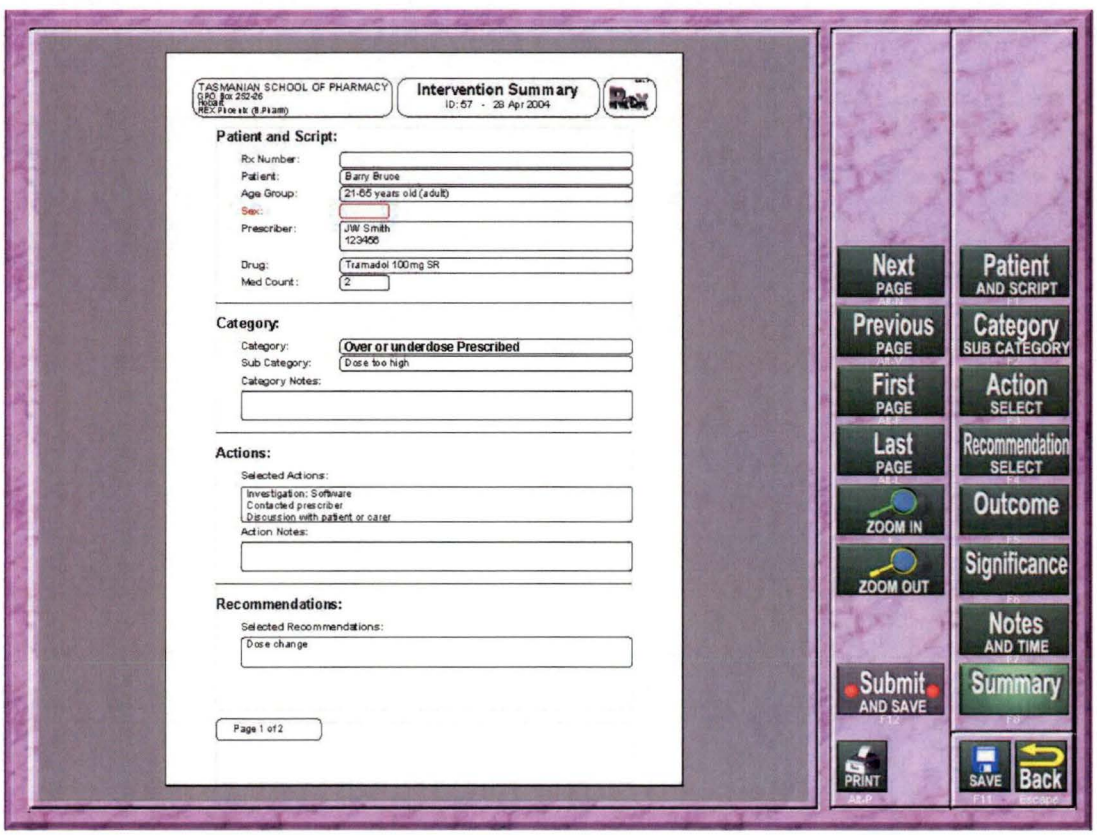
Notes and Time Screen

In the notes and time screen any additional clarifying notes and the total estimated time for the clinical activity is entered. The time indicated should not include any additional time it took you to document the activity.



Summary Screen

In the final summary screen, a summary of all information (including notes) is shown to the user prior to a submission to the PROMISe database. Any items that have not been entered are shown in red.



FAQ / Trouble shooting

Do I have to enter all the information at once?

No, you can save the intervention entry at any time and come back to it when you have time

What it the intervention is related to a script not from my pharmacy?

When recording this intervention enter as much information as you can into the patient and script fields, then proceed to classifying etc

In the situation where the intervention is related to dose (or any other category) but doesn't fall into any of the subcategories

*Here it is appropriate to use one of the **other** subcategories and enter notes to support this selection, use the help notes if you are having a problem.*

Do I need to document interventions that relate to 'pharmacist only' and 'pharmacy only' items?

No, This project is aimed at recording Prescriptions interventions. Another project has recently been completed relating to these items.

What if I have no idea how to start categorising my intervention?

Please refer to the help notes for each category or use the flow chart on the next page.

1. Type of Drug Related Problem

Category (Type)	Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
D **Drug selection** *(Problems related to the choice of drug prescribed or taken)*	Duplication	D1	***When to Use:*** *When there are no obvious adverse clinical effects of the two drugs together, but it is either inappropriate or very unusual to see them prescribed or used together as they are from the same therapeutic class.* *This also covers the specific compliance situation where a person may be inappropriately taking two brands of the same drug.* **Examples of when to use:** • Patient prescribed ranitidine plus pantoprazole • Patient prescribed *Berotec* and *Ventolin* inhalers • Patient taking *Aratac* and *Cordarone* at the same time • Patient taking Vioxx sample provided by doctor as well as the Vioxx dispensed at the pharmacy ***When Not to Use:*** *If the drugs involved are not of the same therapeutic class, then use "Drug Interaction (D2)".*

Drug interaction	D2	***When to Use:*** *When there are no obvious adverse clinical effects of the drug interaction, but the interaction is serious enough to check if the doctor knows of it.* *When there is a likely serious interaction between the patient's existing therapy and a newly prescribed or used drug, but the patient hasn't yet commenced taking the new drug.* **Examples of when to use:** • Patient commenced on tramadol who is already taking fluoxetine • Patient ceases amiodarone while continuing on warfarin • Patient requests to purchase an over the counter antacid when taking tetracycline ***When Not to Use:*** *If the interacting drug is of the same therapeutic class as part of the patient's existing therapy, then use "Duplication (D1)".* *If the interaction is causing, or is suspected of causing a noticeable effect of any sort, then use "Caused by drug interaction (T2)".*
Wrong drug	D3	***When to Use:*** *When the prescription was intended to mean a different drug and there was an error* *When the drug being taken was prescribed correctly but was dispensed as the wrong drug* **Examples of when to use:** • Patient supplied with and taking *Hydrea* 2 m, labelled as *Hydrene* 2 m • Doctor prescribes chlorpromazine 200mg bd but intended carbamazepine 200mg bd ***When Not to Use:*** *If the drug is felt to be inappropriate because of specific patient parameters such as poor renal function, then use "Other Drug selection problem (D0)".* *If the drug prescribed is unavailable for dispensing (either because your pharmacy has no stock or the manufacturer/distributor has no stock) then use "Non-clinical (N0)".*

Wrong dosage form	D4	***When to Use:*** *When the formulation of the product is inappropriate or incorrect in terms of the intended use of the product.* *Also covers the specific situation where an error by the prescriber results in an absurd set of instructions (eg, ventolin inhaler, apply three times a day).* **Examples of when to use:** • Vancomycin oral capsules prescribed to treat systemic infection • Ear drop product ordered or supplied for an eye problem ***When Not to Use:*** *If the patient has a physical problem with the administration of the dosage form as it is intended to be used (eg. swallowing a particular form of the medication whole, cannot appropriately insert suppositories, arthritis limiting the use of an inhaler) then use "Difficulty using dosage form (C4)".* *If the difficulty is related to a technical problem with the use of an administration device such as an aerohaler, then use "demonstration of device (E3)".* *If the difficulty is not a technical one, and related to lack of understanding of the use of the dose form, then use "Confusion about therapy or condition (E2)"*
Previous ADR/allergy	D5	***When to Use:*** *When a drug or drug group is prescribed for the patient to which there has previously been a major adverse reaction.* **Examples of when to use:** A patient is prescribed *Augmentin Duo* who has a documented allergy to penicillins ***When Not to Use:*** *If a patient develops an adverse effect after commencing a drug, then "other adverse effect problem (T0)" would be the best code to use.*

		Other drug selection problem (Specify)	D0	***When to Use:*** *When there is a contraindication to the use of a drug because of an underlying condition in the patient.* *When a less expensive or alternative brand is substituted purely for cost reasons.* *When a drug is felt to be unnecessary based on the conditions the patient has.* *When the drug being used is out of date or deteriorated in some other way.* *When you believe a more effective drug is available and you suggest it instead of the current therapy.* **Examples of when to use:** • *Maxolon* prescribed and doctor contacted to change to *Pramin* • Patient has *Anginine* tablets for use that are over 2 years old and have been stored incorrectly. • Patient commenced omeprazole when they were taking *Celebrex* for a sore knee. *Celebrex* has been ceased, but they are still taking omeprazole. ***When Not to Use:*** *If a less expensive brand is substituted because the ordered brand is unavailable, then use "Non-clinical (N0)"*

O **Over or underdose Prescribed** *(Problems related to the prescribed dose or schedule of the drug)*	Dose too high	O1	***When to Use:*** *When the total daily dose of a medication prescribed is too high for the patient, either based on previous dosage or reference dose ranges.* *Includes the situation where the dose is too high because of a particular parameter of the patient such as renal function weight, age.* *This includes situations where the dose that is prescribed is too high by unintentional error.* **Examples of when to use:** • Patient is prescribed *Diamicron MR* 180mg in the morning • Patient is prescribed dexamethasone 50mg daily (doctor was thinking of prednisolone dose) • Patient prescribed spironolactone 100mg bd for heart failure ***When Not to Use:*** *If the patient is taking too high a dose as a result of not following the appropriate directions, then use "Taking too much (C3)".*
	Dose too low	O2	***When to Use:*** *When the dose prescribed is either too low based on reference dose ranges or too low based on previous therapy.* *This includes situations where the dose that is prescribed is too low by unintentional error* **Examples of when to use:** • Locum doctor prescribes *Karvea* 150mg daily , when previous therapy was meant to be 300mg daily • Prescription for prazosin 0.5mg bd for hypertension ***When Not to Use:*** *If the actual dose per day is suitable, but the duration is too short, then use "Other Dose problem (O0)"* *If the patient is taking too low a dose of a drug as a result of not following the appropriate directions, then use "Taking too little (C2)".*

	Wrong frequency	O3	***When to Use:*** *When the total dose of a medication is suitable, but the frequency or the dosage schedule is inappropriate.* **Examples of when to use:** • Simvastatin ordered as 40mg in the morning • *Diamicron MR* prescribed as three times daily • Phenytoin prescribed as 100mg three times a day, previously been on 300mg at night. ***When Not to Use:*** *If the frequency prescribed results in an excessively high a dose of the drug being prescribed, then use "Dose too high (O1)".* *If the frequency prescribed results in an excessively low dose of the drug being prescribed, then use "Dose too low (O2)".*
	Other Dose Problem (Specify)	O0	***When to Use:*** *When the duration of use of the product is too short or too long.* **Examples of when to use:** • Patient prescribed cephalexin 500mg tds for 3 days for cystitis. ***When Not to Use:*** *If the patient is not taking the appropriate dose of a product as a result of a lack of understanding of the dosage regimen, then a compliance related code would be more appropriate.*

	C **Compliance** *(Problems related to the way the patient takes the medication)*	Potential drug abuse	C1	***When to Use:*** *When there is suspected overuse of a particular, potentially abusable, product is intentional. Includes the situation where the prescription appears to be a forgery.* **Examples of when to use:** • Patient presents a third prescription for Panadeine Forte within 2 weeks, each of the prescriptions was written by a different doctor. Patient lives in one town, sees a doctor for a prescription for oxazepam in another town and presents it for dispensing in a third town. ***When Not to Use:*** *If the overuse is due to an appropriate increase in use because of increased symptoms, then use "Condition not adequately treated (U1)"*
		Taking too little	C2	***When to Use:*** *When the patient uses too little of a medication as a result of forgetfulness or lack of understanding of the dosage regimen prescribed.* **Examples of when to use:** • Patient taking metformin only when required rather than regularly • Patient using *Transiderm-Nitro* patches only every few days, not regularly ***When Not to Use:*** *If the underuse is appropriate because of the resolution of symptoms or a condition, then use "Other Drug selection problem (D0)" and specify that the drug may no longer be required.* *If the patient has a physical problem with the administration of the dosage form as it is intended to be used (eg. swallowing a particular form of the medication whole, cannot appropriately insert suppositories, arthritis limiting the use of an inhaler)then use "Difficulty using dosage form (C4)"*

Taking too much	C3	***When to Use:*** *When the patient uses too much of a medication as a result of forgetfulness or lack of understanding of the dosage regimen prescribed.* **Examples of when to use:** • Patient presents requesting a second ventolin inhaler 11 days after the previous one was provided. • Patient continuing to take 50mg daily of prednisolone, had forgotten to commence a dose reduction schedule as instructed by the doctor. • Patient believes they have forgotten a medication and takes a second dose on the same day. ***When Not to Use:*** *If the overuse is due to an appropriate increase in use because of increased symptoms, then use "Condition not adequately treated (U1)"* *If the overuse consists of inappropriately taking two different brands or forms of the same ingredient unknowingly, then use "Duplication (D1)".*
Difficulty using dosage form	C4	***When to Use:*** *When the patient has a physical problem with the administration of the dosage form or device as it is intended to be used (eg. swallowing a particular form of the medication whole, cannot appropriately insert suppositories, arthritis limiting the use of an inhaler)* **Examples of when to use:** • Patient cannot swallow her slow release diltiazem capsules • Patient with scoliosis cannot insert suppositories • Controlled release tablet ordered for a patient who must crush all oral medications ***When Not to Use:*** *If the difficulty is related to a technical problem with the use of an administration or monitoring device such as an aerohaler, then use "demonstration of device (E3)".* *If the difficulty is not a technical one, and related to lack of understanding of the use of the dose form, then use "Confusion about therapy or condition (E2)"*

		Other **C**ompliance Problem (Specify)	C0	***When to Use:*** *When the patient is aware of the way to take the drug, is physically able to take the drug, and understands its purpose, but does not wish to take it.* **Examples of when to use:** • Patient unwilling to use mirtazapine after reading the package insert. ***When Not to Use:*** *If the compliance issue results in two drugs of the same therapeutic class being taken inadvertently, then use "Duplication (D1)".* *If the patient does not wish to take the medication because it is causing an adverse event of some sort, then a toxicity or adverse event category (T) would be appropriate.*
	U **Untreated indications** *(Problems relating to actual or potential conditions that require management)*	Condition not adequately treated	U1	***When to Use:*** *When the patient has a symptom or disease condition that is either not being treated, or not being treated adequately.* **Examples of when to use:** • Patient taking *Hydrene* and *Coversyl* for high blood pressure, but blood pressure continues to be high • Patient develops nausea as part of a viral illness and requires addition of antinauseant medication. ***When Not to Use:*** *If the patient requires additional therapy as a preventative strategy (eg potassium when on a loop diuretic), then use "Preventive therapy required (U2)".*

		Preventive therapy required	U2	***When to Use:*** *When the patient requires additional therapy to prevent a likely adverse event as a result of the patient's therapy, coexisting diseases or risk factors.* **Examples of when to use:** • Patient commences on morphine slow release and you suggest the addition of a stool softener • You suggest the addition of antiplatelet therapy in an elderly, obese, male patient with type two diabetes and hypertension ***When Not to Use:*** *If the patient already has treatment for a particular problem, but it is not effective enough, then use "Condition not adequately treated (U1)".*
		Other Untreated indication Problem (Specify)	U0	***When to Use:*** *When you think the patient has any other problem relating to actual or potential conditions that requires management.*
	M **Monitoring** *(Problems related to monitoring the efficacy or adverse effects of a drug)*	Drug levels	M1	***When to Use:*** *When, in the absence of any adverse effects, you believe that drug level monitoring is required.* **Examples of when to use:** • Elderly woman on digoxin, who has not had a blood test for two years • Patient on carbamazepine 200mg twice daily who has not had a blood test for 12 months. • Patient commenced on phenytoin 3 weeks ago and you recommend a blood level. ***When Not to Use:*** *If the patient is experiencing an adverse effect of some sort, which you believe is due to elevated drug levels, then use "Caused by dose too high (T1)".* *If the need for drug level monitoring comes about as a result of a newly commenced drug, then use "Drug interaction (D2)". The monitoring then becomes a recommendation, not the primary problem.*

Laboratory Monitoring	M2	***When to Use:*** *When, in the absence of any adverse effects, you believe that a laboratory test is required (e.g. Potassium, creatinine, white cell count, INR)* *Also covers the situation where you undertake the monitoring in question and provide a recommendation following the result. (eg INR monitoring and suggesting a change of warfarin dose)* **Examples of when to use:** • Patient recently increased frusemide dose from 40mg daily to 120mg daily without a change in potassium replacement. • Patient commenced on Amiodarone and you recommend a thyroid function test ***When Not to Use:*** *If there are adverse effects associated with the parameter, then use "Other Toxicity problem (T0)", and specify the parameter to be tested and the symptom or sign. (eg, patient with leg cramps, suggest magnesium level)* *If the need for laboratory level monitoring comes about as a result of a newly commenced drug, then use "Drug interaction (D2)". The monitoring then becomes a recommendation, not the primary problem.*
Non-Laboratory monitoring	M3	***When to Use:*** *When, in the absence of any adverse effects, you believe that non-laboratory monitoring is required. (eg BP, BSL, temperature, weight)* *Also covers the situation where the test is undertaken as a screening process.* **Examples of when to use:** • A patient with heart failure has an appropriate increase in his dose of frusemide and you advise him to weigh himself each day for the next week. ***When Not to Use:*** *If you recommend monitoring of a parameter (eg weight, BSL) as a result of another drug problem, then that recommendation should be recorded in the Recommendation code section. The type of problem that leads to this recommendation may vary.*

		Other Monitoring Problem (Specify)	M0	***When to Use:*** *When the patient has another problem related to the monitoring of his drugs for either efficacy or adverse effects.* *When the patient should be having monitoring done, but has problems with attending the laboratory, or paying for the test or equipment needed.*
	E **Education or Information** *(Problems related to knowledge of the disease or its management)*	Patient drug information request	E1	***When to Use:*** *When the patient has a reasonable understanding of their condition, but requests further information about their medication.* **Examples of when to use:** • Patient requests information about alendronate and you provide a CMI ***When Not to Use:*** *If the patient requests information primarily about the disease state, rather than a drug, then use "Disease management or advice (E4)"* *If the patient does not request the information, but you discover that they need the information in the course of your routine dispensing, then use "Confusion about therapy or condition (E2)".* *If the request is not about a specific drug, but a therapeutic device, then use "Demonstration of device (D3)"*

		Confusion about therapy or condition	E2	***When to Use:*** *When the patient does not understand the reasons for the use of a medication or a fundamental aspect of the condition they have, but they still take the medication as directed (ie correct dose and time).* **Examples of when to use:** • When providing a new prescription for metoprolol for a patient with newly diagnosed hypertension, you find that she believes that the drug may cure the condition and she can stop the drug in a few months. ***When Not to Use:*** *If the patient requests further information, then use either "Drug information request (E1)" or "Disease management or advice (E4)" as appropriate.* *If the confusion would have (or did) resulted in a change in compliance (either taking too much or too little of the medication), then an appropriate compliance code should be selected.* *If the request is not about a specific drug, but a therapeutic device, then use "Demonstration of device (D3)*
		Demonstration of device	E3	***When to Use:*** *When the patient has a technical problem with the use of an administration or monitoring device.(eg inhaler, BSL Monitor, turbuhaler)* **Examples of when to use:** • A patient is changed from a metered dose inhaler to an aerohaler and requests a demonstration of how to use the device. ***When Not to Use:*** *If the patient understands how to use the device, but has a physical reason for not being able to use it, then use "Difficulty using dosage form (C4)".*

		Disease management or advice	E4	***When to Use:*** *When the primary purpose of the interaction with the patient was to inform them of critical aspects of the management or prevention of a disease or condition.* *Also covers the situation where the patient requests the information.* **Examples of when to use:** • You counsel a patient with heart failure about fluid restriction • You provide information about weight loss or smoking cessation for a person who has cardiovascular disease. ***When Not to Use:*** *If the patient request information primarily regarding a drug, then use "Drug information request (E1)".*
		Other Education or Information Problem (Specify)	E0	***When to Use:*** *When another health care worker (e.g. a doctor or another pharmacist) requests information. Also covers any other education or information related problem.*
	N **Non-clinical** *(Problems related to administrative aspects of the prescription)*	Not sub-classified	N0	***When to Use:*** *When an illegible prescription requires clarification.* *When the prescription does not meet PBS requirements.* *When the drug is unavailable from the manufacturer or is out of stock temporarily.* *When the dose of the medication is not specified on the prescription.* *When the prescriber is not authorised to prescribe that particular medication.* *When the patient has problems getting to pharmacy or collecting prescriptions.* **Examples of when to use:** • Physeptone 5mg tablets not available, substitute 10mg tablets with dose adjustment ***When Not to Use:*** *If a less expensive or alternative brand is substituted purely for cost reasons, then use "Other drug selection problem (D0)" and specify brand substitution for cost reasons.*

	T **Toxicity or Adverse reaction** *(Problems related to the presence of signs or symptoms which are suspected to be related to an adverse effect of the drug)*	Caused by dose too high	T1	***When to Use:*** *When the patient has signs or symptoms that suggest an adverse reaction that is likely to be dose related.* **Examples of when to use:** • Patient has increased their dose of tramadol and develops headache, sweating and agitation • Promethazine and amitriptyline together causing worsening of dry mouth • Patient prescribed diamicron MR three times daily and has significant hypoglycaemic symptoms ***When Not to Use:*** *If the patient does not have any signs or symptoms of adverse effects and you believe the dose is too high, then use "Dose too high (O1)"*
		Caused by drug interaction	T2	***When to Use:*** *When the patient has signs or symptoms that suggest an adverse reaction that relates to the presence of an interacting drug* **Examples of when to use:** • Patient taking warfarin develops an elevated INR after commencing metronidazole • Patient taking perindopril and frusemide, who commences diclofenac and develops renal dysfunction ***When Not to Use:*** *If the patient has an interacting drug present, but there are no signs or symptoms of the interaction causing an adverse effect, then use "Drug interaction (D2)"*

		Other Toxicity/Adverse Effect problem (Specify)	T0	***When to Use:*** *When the patient has signs or symptoms that suggest an adverse reaction that is likely to be related to a particular drug, but doesn't seem to be dose related or related to an interaction.* *Covers the situation where the patient develops an adverse reaction such as a rash after commencing a drug.* **Examples of when to use:** • Patient develops a rash after commencing on *Augmentin Duo* • Patient develops hypotension after commencing prazosin, even though the dose is controlling the prostatic hypertrophy ***When Not to Use:*** *Should not be used if there are no signs or symptoms of adverse effects.*

2. Actions to Investigate the Problem

What did the pharmacist do in order to sort out the problem? *Note 1: multiple actions are possible for one situation and each action may occur multiply* *Note 2: Each of these actions will have a time value allocated to them after the pilot study*	Action	Code	Scope Notes (When the code should be used, when not to use it and examples)
	Investigation: Written material	A1	**When to Use:** *When the pharmacist consults a textbook or other written reference material)* **Examples of when to use** • Printed versions of Martindale, AMH or PP guide **When Not to Use:** *If the reference material is electronically accessed from the local computer system, use "Investigation:software (A2)".*
	Investigation: Software	A2	**When to Use:** *When the pharmacist consults decision support software that is located on the computer or server in the pharmacy.* **Examples of when to use** • eMims, electronic AMH, Electronic therapeutic Guidelines **When Not to Use:** *If the electronic resource requires an internet connection to obtain it, then use "Investigation: Internet (A3)".*

	Investigation: Internet	A3	**When to Use:** *When the pharmacist consults decision support software that is located on the internet.* **Examples of when to use** • Pharmacist conducts a PubMed search • Pharmacist is a subscriber to an internet based set of resources such as Medscape, or a University library service **When Not to Use:** *If the information source is not from the internet, then use another investigation source (either A1, A2 , A4 or A5).* *If the internet is used to make email contact with another healthcare professional for assistance, then use "Investigation: Other (A5)".* *If the internet is used to make email contact with the National Prescribing Service or other State or National information support service, then use "Contacted State or National Drug information service (A4)".*
	Contacted Drug Information Service	A4	**When to Use:** *When the pharmacist contacts the National Prescribing Service or one of the State Drug Information Services for information.* **Examples of when to use** • Pharmacist emails the NPS to determine information about a new drug that has not yet been released. **When Not to Use:** *If the pharmacist contacts a colleague who they think may know something about the problem, then use "Investigation : Other (A5)".*

	Investigation: Other (specify)	A5	**When to Use:** *When the pharmacist consults another pharmacist or health professional to investigate the problem.* *When the pharmacist contacts the manufacturer or supplier of the product for information.* **Examples of when to use** • Pharmacist rings the pharmacy where the prescription was previously dispensed to clarify an issue. • Pharmacist contacts a colleague who works at the same pharmacy to clarify the problem. • Pharmacist contact the HIC to determine the details of a particular Authority script arrangement. **When Not to Use:** *If the health professional that is contacted is someone who works for the NPS or a state or national drug information service, then use "Contacted State or National Drug information service (A4)".*
	Contacted prescriber	A6	**When to Use:** *When the pharmacist needs to contact the prescriber in order to clarify the prescriber's intent, provide new information from a patient encounter or to discuss recommendations the pharmacist may wish to make.* **Examples of when to use** • Pharmacist rings the doctor to confirm that the dose increase for tramadol was intentional, as the patient was unaware of any change. **When Not to Use:** *If as a result of investigating the problem you refer the patient to the prescriber, but do not contact the prescriber first, then the referral is a recommendation and you should use "Refer to prescriber (R10)"*

	Discussion with patient or carer	A7	**When to Use:** *When a discussion with the patient takes place that is primarily aimed at clarifying a drug related problem.* **Examples of when to use** • Pharmacist receives a script from the patient and finds the dose is different from the last time the patient had the drug dispensed, then checks with the patient that the dose change was intentional. **When Not to Use:** *If the discussion with the patient is within the usual course of the prescription being received or giving out, then it is not considered an action. For example, "Can you please wait while I contact the doctor" is not a discussion with the patient/carer.*
	Corrected without discussion	A8	**When to Use:** *When the problem is a simple issue that requires correction (often administrative).*
	Other Action (specify)	A0	**When to Use:** *When the pharmacist undertakes any other investigation or activity in order to clarify the actual or potential drug related problem.* **Examples of when to use** • Pharmacist contacts the hospital to determine the dosages of the discharge drugs that were supplied. **When Not to Use:** *When the action can be entered under any one of the other action categories.*

3. Recommendations to Resolve the Problem

What did the pharmacist recommend as a solution to the problem? *Note 1: multiple recommendations possible for one situation*	Recommendation	Code	Scope Notes (When the code should be used, when not to use it and examples)
	Education/counselling session	R1	**When to Use:** *When the pharmacist conducts a detailed counselling or education session with the patient or carer that is specifically targeted at resolving the problem that has been identified. Includes the provision of a written summary of medications and their timing such as a medipal or medprof.* **Examples of when to use** • Patient was not taking metformin correctly, pharmacist gave details of how to take it in relation to food, how long it lasts and also gave information regarding the complications and management of diabetes. **When Not to Use:** *If the discussion with the patient is to determine the nature of the problem, rather than propose a resolution recommendation or further education, then it is an investigative action and you should use "Discussion with patient or carer (A7)". Note that a conversation or discussion with the patient may involve both investigation of the problem ("discussion with patient/carer(A7)) and an education/counselling session to resolve the problem identified (Education/counselling session (R1).*
	Dose change	R2	**When to Use:** *When the pharmacist recommends that the total daily dose of the medication is either increased or decreased.* **Examples of when to use** • Pharmacist recommends that the dose of *Diamicron MR* be reduced. **When Not to Use:** *If the total daily dose of the product does not change, but you recommend the schedule changes, then use "Dose frequency or schedule change (R9)".*

	Drug change	R3	**When to Use:** *When the pharmacist recommends a change in medication.* **Examples of when to use** • Patient describes ongoing drowsiness in the mornings with nitrazepam, and the pharmacist suggests a change to temazepam. **When Not to Use:** *If the change in medication is simply a brand change, then use "Drug brand change (R8)".* *If the change in medication is a change in the formulation (eg from cream to ointment, or plain tablets to controlled release), then use "drug formulation change (R5)".*
	Drug cessation	R4	**When to Use:** *When the pharmacist suggests that the drug is ceased, either temporarily or permanently.* **Examples of when to use** • Pharmacist suggests patient does not take a medication for a day and to go to the doctor to discuss the problem. Note in this case you should also select "Refer to prescriber (R10)" **When Not to Use:** *If the drug dose is changed or some other manipulation of the drug or dose is undertaken, then the appropriate code should be used.* *If a drug is stopped in order to start another one for the same indication, then use "Drug change (R3)"*
	Drug formulation change	R5	**When to Use:** *When the active ingredient of the medication and its total daily dose is not changed, but the formulation is changed.* **Examples of when to use** • Pharmacist suggests a change from a metered dose inhaler to an aerohaler • The pharmacist suggests a change from cream to ointment as the cream is not available **When Not to Use:** *If the formulation change also results in a change in the total daily dose of the medication, then use "Dose change (R2)".*

	Monitoring: non-laboratory	R6	**When to Use:** *When the pharmacist suggests that the patient undertake some non-laboratory monitoring for efficacy or adverse effects from the medication.* **Examples of when to use** • Pharmacist suggests the patient weigh themselves daily while they are taking an increased dose of frusemide for heart failure. **When Not to Use:** *If the monitoring involves laboratory-based test of some sort, then use "Monitoring: Laboratory test (R12)".*
	Drug addition	R7	**When to Use:** *When the pharmacist recommends that a new drug be commenced.* **Examples of when to use** • Pharmacist recommends the addition of aspirin in a patient that is at risk of cardiovascular events **When Not to Use:** *If the addition of a drug involves the change from a single drug to a combination product (say from Avapro to Avapro HCT), then use "Drug Change (R3)".* *If a drug is commenced and another was ceased for the same indication, then use "Drug change (R3)"*
	Drug brand change	R8	**When to Use:** *When the pharmacist suggests a change in brand of the drug (same drug same dose).* **Examples of when to use** • Maxolon unavailable, pharmacist suggests that Pramin could be substituted. **When Not to Use:** *If the change in brand is to a different formulation of the same active ingredient, then use "Drug formulation change (R5)".*

	Dose frequency/schedule change	R9	**When to Use:** *When the total daily dose of the product remains the same, but the pharmacist suggests a change in the number of times a day, or the timing of the doses each day.* **Examples of when to use** • Pharmacist suggests changing valproate from 1g twice daily to 500mg four times daily to reduce gastric upset. • Pharmacist suggests change in timing of Isosorbide mononitrate from morning to night to cover unstable angina during the night. **When Not to Use:** *When the change results in a change in the total daily dose of the medication, use "Dose change (R2)"*
	Refer to prescriber	R10	**When to Use:** *When the problem is of sufficient seriousness for the patient to see the prescriber again in order to resolve the problem.* **Examples of when to use** • Patient presents with a rash from the recently commenced antibiotics. You tell the patient to cease the capsules and refer her back to the prescriber for some different antibiotics. Note should also select "Drug Change (R3)" and "Drug cessation (R4)". **When Not to Use:** *If the patient goes back to the prescriber simply to get a new prescription, as a result of you discussing the problem with the prescriber then this code should not be selected.* *If the pharmacist discusses other issues with the prescriber, this is an action and you should select "contacted prescriber (A6)".*
	Refer to hospital	R11	**When to Use:** *When the problem is of sufficient seriousness for the patient to go to hospital in order to resolve the problem.* **Examples of when to use** • Patient presents with melena after commencing a non steroidal medication. **When Not to Use:**

	Monitoring: Laboratory test	R12	**When to Use:** *When the pharmacist suggests to the prescriber that they undertake some laboratory monitoring for efficacy or adverse effects from the medication.* **Examples of when to use** • You contact the prescriber to suggest that he check the INR in a patient taking warfarin who has commenced amiodarone. **When Not to Use:** *If the monitoring relates to a test that can be done at home (eg BSL) then use "Monitoring: non-laboratory (R6)".*
	Refer for medication review	R13	**When to Use:** *When the pharmacist commences the process for a Home Medicines Review for the patient.* **Examples of when to use** • You recommend a HMR for patient who has significant problems with understanding of their medications. **When Not to Use:** *When you undertake an "ad hoc" review of the medications and generally assist with the patient's understanding, use "Education Counselling session (R1)"*
	Commence dose administration aid	R14	**When to Use:** *When you suggest the use of a dose administration aid such as a Dosette box or a Webster pack.* **Examples of when to use** • You recommend a Webster pack for a patient who has significant problems with understanding of the schedule and timing of their medications. **When Not to Use:** *If you provide a written summary of the patients medications and their schedule (eg medprof or mediPal) in addition to the dose administration aid, then also select "Education/Counselling session (R1)".*

	No recommendation necessary	R0	**When to Use:** *When you have investigated a problem, but find that the problem does not need to be addressed with any changes or monitoring.* **Examples of when to use** Pharmacist receives a script from the patient and finds the dose is different from the last time the patient had the drug dispensed, then checks with the patient that the dose change was intentional.
	Other recommendation (specify)	R15	**When to Use:** *When the pharmacist makes any other recommendation that is not mentioned on this list to resolve the problem.*

4. Acceptance of Pharmacist's Resolution of the Problem (Outcome)

Did the clinical activity actually result in a change of management, or was the suggestion deemed not relevant in this case? That is: **Were the pharmacist's recommendations implemented?**	**Outcome**	**Scope Notes** **(When the code should be used, when not to use it and examples)**
	Unknown	**When to Use:** *When the pharmacist is unaware of what happened after he made the recommendation(s).* **Examples of when to use** • You suggest that the patient go and see the doctor and they say they will think about it. • You leave a message for the doctor to contact the patient about a problem.
	Accepted	**When to Use:** *When all of the recommendation(s) that the pharmacist makes are accepted* **Examples of when to use** • You contact a doctor to suggest reduction of the dose of tramadol and he accepts your suggestion. • You take the time to explain fully the medications and disease a patient has (Education Counselling (R1)). **When Not to Use:** *If you make multiple recommendations and not all of them are accepted, then use "Partially Accepted"*
	Partially Accepted	**When to Use:** *When the pharmacist makes multiple recommendations, and only some of the recommendations that were mac accepted.* **Examples of when to use** • You contact a doctor to suggest reduction of the dose of digoxin and a repeat blood level of digoxin. He agre the reduction in dose, but thinks the blood level would be a waste of time. • You suggest to the patient that they withhold their ibuprofen for a few days and go back to the doctor and as different medication. They decide to stop the drug for a while, but choose not to go to the doctor.
	Not accepted	**When to Use:** *When all of the recommendation(s) that the pharmacist makes are rejected* **Examples of when to use** • You contact a doctor to suggest reduction of the dose of tramadol and he says that he still wants to use that the patient's pain warrants it.

5. Clinical Significance of the Problem

If the pharmacist had not intervened/provided a clinical activity, what was the possible/potential outcome if therapy had continued? (a subjective rating, predicting the clinical severity if action was not taken). That is: **How serious was/could have been the problem?** *Note 1: Situations rated as high(S4) or moderate (S3) will require additional information to be entered into a notes field*	**Significance**	**Code**	**Scope Notes**
	Nil	S0	**When to Use:** When there is no consequence to the patient. **Examples:** • Prescription incomplete, contacted doctor and obtained directions
	Low	S1	**When to Use:** When the consequence to the patient are related to costs or information only **Examples:** • Pramin substituted for Maxolon • Provided CMI on *Fosamax* at request of patient.
	Mild	S2	**When to Use:** When the consequences to the patient are that they have improved a minor symptom, or if the intervention had not occurred they would have developed a minor symptom. The symptom should be such that it does not require a doctor's visit to treat. **Examples:** • Patient commences on a codeine based analgesic and you recommend to take prophylactic stool softeners
	Moderate	S3	**When to Use:** When if the intervention did not occur, it was likely that the patient would have had to go to the doctor because of the consequences. Also covers the situation where you need to refer the patient to the doctor because of the seriousness of the situation. **Examples:** • The patient was inadvertently taking twice the dose of sulphonylurea tablets and would have developed hypoglycaemia that required a trip to the GP to treat the symptoms.

	High	S4	**When to Use:** When if the intervention did not occur, it was likely that the patient would have had to go to a hospital because of the consequences. Also covers the situation where you need to refer the patient to a hospital because of the seriousness of the situation. When if the intervention did not occur, it was likely the patient would have had to receive assistance from a regular nurse visit, or would have had to been placed into residential care of some sort. Also includes the situation where the intervention prevents the additional nursing care or delays the admission to residential care. **Examples:** • The patient was inadvertently taking double the dose of amiodarone and was taking warfarin. Presented with bleeding.

5. Other Information Regarding the Problem

Notes	This section is to add free text notes, to more thoroughly explain action(s) or the reason(s) for them. *Note 1: Notes may be required to clarify any of the "other" categories in the Type, Action and Recommendation sections* *Note 2: Situations rated as of high or moderate clinical significance will require additional information*	
Time	How long did it take to perform the clinical activity? (Approximate time spent conducting the clinical activity)	minutes

9.3 Appendix 3: Pilot Study Pharmacist Demographics Questionnaire

DOCUMENT Pilot Validation Questionnaire

1. About You and Your Background

The following information is important to enable us to determine how your background influences the way the intervention scenarios are classified.

1.1 Gender (please tick appropriate box)

Male
Female

1.2 Age (please tick appropriate box)

20-25
26-30
31-40
41-50
51-60
over 60

1.3 Year of Graduation

Please enter the year you completed your undergraduate pharmacy degree.

_____
Not yet graduated

1.4 Undergraduate Institution

Please tick/enter the institution where you undertook/ are undertaking your undergraduate pharmacy training.

University of Tasmania
Charles Sturt University
Curtin University
James Cook University
Monash University
University of Queensland
University of South Australia
University of Sydney
Other (please specify) _____

1.5 Preregistration Training

Please tick/enter the type of pharmacy where you undertook/ are undertaking your pre-registration pharmacy training.

City community pharmacy
Suburban community pharmacy
Rural community pharmacy
Tertiary teaching hospital
Rural/secondary hospital
Not yet commenced pre-registration (go to question xxx)
Other (please specify) _____

1.6 Practice Profile

Please enter the approximate number of full-time years (that is, adjust for part-time work) in each of the different practice settings where you have worked.

Practice Setting	Number of full-time years
City community pharmacy	
Suburban community pharmacy	
Rural community pharmacy	
Tertiary teaching hospital	
Rural/secondary hospital	
Medication Reviews in Nursing Homes	
Other (please specify) _____	
Other (please specify) _____	

1.7 Continuing Education

Please tick how many hours of CE/CPD you completed in the 12 months prior to this survey:

1-9 hours
10-19 hours
20-29 hours
30+ hours
Don't know

1.8 Further Qualifications

Please indicate which of the following types of further qualifications you have completed since you registered.

Practice Setting
♦ Postgraduate Diploma by coursework
♦ Masters Degree by coursework
♦ Masters or PhD by research
♦ Accredited for Medication Reviews (AACP)
♦ Accredited for Medication Reviews (SHPA)

2. About Your Main Area of Work

The following questions relate to the practice setting where you spend the majority of your time practicing as a pharmacist.

2.1 Current Area of Practice

Please tick the area of practice where you spend the majority of your time practicing as a pharmacist.

City community pharmacy
Suburban community pharmacy
Rural community pharmacy
Tertiary teaching hospital
Rural/secondary hospital
Medication Reviews
University or other tertiary educational institution
Undergraduate student
Other (please specify) _____

2.2 What is the post code of the main area where you work

_____

2.3 When you are at work, how many other pharmacists also are present at your practice at the same time?

- None, I am the sole pharmacist
- One other pharmacist
- 2-4 other pharmacists
- 5 or more other pharmacists

2.4 Ownership of the pharmacy

This refers to ownership of the practice entity not the premises.

- Individual
- Partnership
- Corporate (one of a number of practices owned by a corporation)
- Associateship
- Franchise
- Don't know/Not applicable

2.5 Position

Please tick the most appropriate description of your current position where you spend the majority of your time practicing as a pharmacist.

Ownership of a community pharmacy
Employed in a community pharmacy setting
Clinical pharmacist in a hospital setting
Other pharmacist in a hospital setting
Locum Pharmacist
Other (please specify) _____

2.6 How many hours do you work at this practice on average per week?

<10 hours
10 to 20 hours
20 to 40 hours
over 40 hours

2.7 On average, how many prescriptions would you dispense or check per week?

<100
100-300
300-600
600 or more

2.8 *Which of the following activities do you undertake at least daily while you are at work?*

Dispensing of prescriptions
Packing or checking of dose administration aids (eg Webster packs)
Counselling of patients
Reading / searching internet for further education
Supervising daily pickup of medications

2.9 *How often do you counsel patients ?*

- Very often
- Often
- Sometimes
- Seldom or Never

2.10 *How often are you interrupted while filling a prescription order?*

- Very often
- Often
- Sometimes
- Seldom or Never

3. More Generally about your View of Pharmacy and Pharmacists

3.1 *As a pharmacist, I wish for an increased status within the primary health care team.*

- Strongly agree
- Agree
- Disagree
- Strongly disagree

3.2 *Pharmacy represents an excellent career choice.*

- Strongly agree
- Agree
- Disagree
- Strongly disagree

3.3 I am happy with my choice of pharmacy as a career.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

3.4 I would recommend pharmacy as a career to others considering it.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

3.5 Which of the following factors would you nominate as being important in choosing where you work as a pharmacist?

(a) Income

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(b) Reasonable workload

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(c) Having more than one pharmacist on duty

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(d) Flexibility and ability to pick one's own hours of work

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(e) Intellectual stimulation

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(f) Helping people

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(g) Good work conditions

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(h) Job security

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(i) Interesting and challenging work

- Strongly agree
- Agree
- Disagree
- Strongly disagree

3.6 What do you see as the major change in pharmacy sector in the next two to five years?

_____

_____

_____

3.7 Hypothetically, if you were to receive a windfall of $100,000 and could only use it on <u>one</u> of the following things, what would you use it for?

For my business
- More employees
- More technology
- Skill development
- Debt reduction
- Buildings/equipment

For my financial security
- Debt reduction
- Buildings/renovation additions
- Investment of some sort

For my leisure activities
- A holiday / yacht / sports car or similar

Altruistic Purposes
- Donate to Charity or similar

9.4 Appendix 4: Pilot Study Participant Questionnaire

PROMISe Pilot Study Participant Questionnaire

1.About You and Your Background

The following information is important to enable us to determine how your background influences the way the intervention scenarios are classified.

1.1 Gender (please tick appropriate box)

Male
Female

1.2 Age (please tick appropriate box)

20-25
26-30
31-40
41-50
51-60
over 60

1.3 Year of Graduation

Please enter the year you completed your undergraduate pharmacy degree.

_____
Not yet graduated

1.4 Undergraduate Institution

Please tick/enter the institution where you undertook/ are undertaking your undergraduate pharmacy training.

University of Tasmania
Charles Sturt University
Curtin University
James Cook University
La Trobe University
Monash University
University of Queensland
University of South Australia
University of Sydney
Other (please specify) _____

1.5 Preregistration Training

Please tick/enter the type of pharmacy where you undertook/ are undertaking your pre-registration pharmacy training.

City community pharmacy
Suburban community pharmacy
Rural community pharmacy
Tertiary teaching hospital
Rural/secondary hospital
Not yet commenced pre-registration (go to question xxx)
Other (please specify) _____

1.6 Practice Profile

Please enter the approximate number of full-time years (that is, adjust for part-time work) in each of the different practice settings where you have worked.

Practice Setting	Number of full-time years
City community pharmacy	
Suburban community pharmacy	
Rural community pharmacy	
Tertiary teaching hospital	
Rural/secondary hospital	
Medication Reviews in Nursing Homes	
Other (please specify) _____	
Other (please specify) _____	

1.7 Continuing Education

Please tick how many hours of CE/CPD you completed in the 12 months prior to this survey:

1-9 hours
10-19 hours
20-29 hours
30+ hours
Don't know

1.8 Further Qualifications

Please indicate which of the following types of further qualifications you have completed since you registered.

Practice Setting
♦ Postgraduate Diploma by coursework
♦ Masters Degree by coursework
♦ Masters or PhD by research
♦ Accredited for Medication Reviews (AACP)
♦ Accredited for Medication Reviews (SHPA)
♦ Other, please specify

2. About Your Main Area of Work

The following questions relate to the practice setting where you spend the majority of your time practicing as a pharmacist.

2.1 Current Area of Practice

Please tick the area of practice where you spend the majority of your time practicing as a pharmacist.

City community pharmacy
Suburban community pharmacy
Rural community pharmacy
Tertiary teaching hospital
Rural/secondary hospital
Medication Reviews
University or other tertiary educational institution
Undergraduate student
Other (please specify) _____

2.2 What is the post code of the main area where you work

_____

2.3 When you are at work, how many other pharmacists also are present at your practice at the same time?

- None, I am the sole pharmacist
- One other pharmacist
- 2-4 other pharmacists
- 5 or more other pharmacists

2.4 Ownership of the pharmacy

This refers to ownership of the practice entity not the premises.

- Individual
- Partnership
- Corporate (one of a number of practices owned by a corporation)
- Associateship
- Franchise
- Don't know/Not applicable

2.5 Position

Please tick the most appropriate description of your current position where you spend the majority of your time practicing as a pharmacist.

Ownership of a community pharmacy
Employed in a community pharmacy setting
Clinical pharmacist in a hospital setting
Other pharmacist in a hospital setting
Locum Pharmacist
Other (please specify)_____

2.6 How many hours do you work at this practice on average per week?

<10 hours
10 to 20 hours
20 to 40 hours
over 40 hours

2.7 On average, approximately how many prescriptions would you dispense or check per hour at work?

<1
1-6
7-15
16-30
31-45
Over 45

2.8 What proportion of a typical week at work would be filled by each of the following activities?

(we are aware there are many other activities, but we are primarily interested in these activities)

Activity	Approximate Proportion of week (%)
Dispensing of prescriptions	
Packing or checking of dose administration aids (eg Webster packs)	
Counselling of patients	
Reading / searching internet for further education	
Supervising daily pickup of medications	
Supervising/selling S2/S3 products	
Medication reviews (Domicilliary or Nursing homes)	
Hospital based clinical activities (ward visits etc.)	
Administrative tasks (HIC claim, accounts, ordering etc.)	

2.9 How often do you counsel patients ?

- Very often
- Often
- Sometimes
- Seldom or Never

2.10 How often are you interrupted while filling a prescription order?

- Very often
- Often
- Sometimes
- Seldom or Never

3. About the Computer System at your pharmacy

3.1 Do you have someone in the practice responsible for the computer system?

Yes Go to next question
No Go to question 3.26

3.2 How would you rate the IT skills of the person responsible for the computer system?

- Expert
- Pretty Good
- Gets by
- Novice

3.3 Do you have an agreement (formal or otherwise) with an IT service provider?

Yes
No
Don't know

3.4 Is the pharmacy networked?

Yes
No

3.5 What Server Operating System do you have?

No Server

NT 2000 Server

Apple Mac

NT 4 Server

Linux

Other (please specify)

3.6 Is you server protected by uninterrupted power supply (UPS)?
Yes
No
Don't know

3.7 Do you have a firewall?
Yes
No
Don't know

3.8 Do you backup your data?

Yes – How Often

Daily

Weekly

Monthly

Other

No – go to question 3. 34

3.9 What types of files do you back up?

Server

All workstatons

Some workstations

Financial records

Patient records

3.10 When did you last check that your backup worked?

Never
Last year
Last month
Last week

3.11 Where do you keep your backup disks/tapes?

On-site
Off-site

3.12 Do you have Antivirus software?

Yes

No

If Yes how often do you update it? Daily

Weekly

Monthly

Other

3.13 Do you use login passwords for all your workstations?
Yes
No

3.14 Do you carry out regular maintenance on your computers?
Yes
No

3.15 Do you have the Internet connected?
No
On one computer
On all of the network

3.16 What type of internet connection do you have?
Dial up Modem
ADSL/Broadband
Satellite

3.17 Are you PKI enabled?
Yes
No
Don't know

4. About the use of Computers at your pharmacy

4.1 Have you explored any of the following uses for IT? If yes, have you succeeded and what is your measure of success?

		Measure of Success
Managing finance and administration	○Yes ○No	strategy_finance_success
Managing distribution	○Yes ○No	strategy_distribution_success
Stock control	○Yes ○No	strategy_knowledge_success
Security control	○Yes ○No	strategy_security_control_success
Managing customer information	○Yes ○No	strategy_customer_success
Controlling work flow	○Yes ○No	strategy_process_success
Marketing	○Yes ○No	strategy_marketing_success

4.2 Are you looking at using IT in any new areas, if so which?

Yes Please specify

No

4.3 *For the last piece of software you purchased how did you decide what to buy (you may tick more than one box)?*

Sales representative/vendor approach

Peer recommendation

Conference/Trade Fair

Solved current problem

Perceived ease of use

Compatibility (with other software/hardware)

Support provided

Training

Price

Other, please specify _____

4.4 *Which of the following statements best describes your approach to changing software?*

I am loathe to change software once it's implemented on my system

I often look for better ways of doing things

If it doesn't do/can't do what I want then I'll shop around

I would change software if I could clearly see the benefit in doing so

None of the above – any comment?_____

4.5 On average how would you rate the proficiency of staff in using IT?

For Pharmacists	Experts
	Pretty Good
	Get by
	Novices
For non-pharmacist staff	Experts
	Pretty good
	Get by
	Novices

5. More Generally about your View of Pharmacy and Pharmacists

5.1 As a pharmacist, I wish for an increased status within the primary health care team.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

5.2 Pharmacy represents an excellent career choice.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

5.3 I am happy with my choice of pharmacy as a career.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

5.4 I would recommend pharmacy as a career to others considering it.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

5.5 Which of the following factors would you nominate as being important in choosing where you work as a pharmacist?

(a) Income

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(b) Reasonable workload

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(c) Having more than one pharmacist on duty

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(d) Flexibility and ability to pick one's own hours of work

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(e) Intellectual stimulation

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(f) Helping people

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(g) Good work conditions

- Strongly agree
- Agree
- Disagree
- Strongly disagree

(h) Job security

- Strongly agree
- Agree
- Disagree
- Strongly disagree

5.6 Hypothetically, if you were to receive a windfall of $100,000 and could only use it on <u>one</u> of the following things, what would you use it for?

For my business

- More employees
- More technology
- Skill development
- Debt reduction
- Buildings/equipment

For my financial security

- Debt reduction
- Buildings/renovation additions
- Investment of some sort

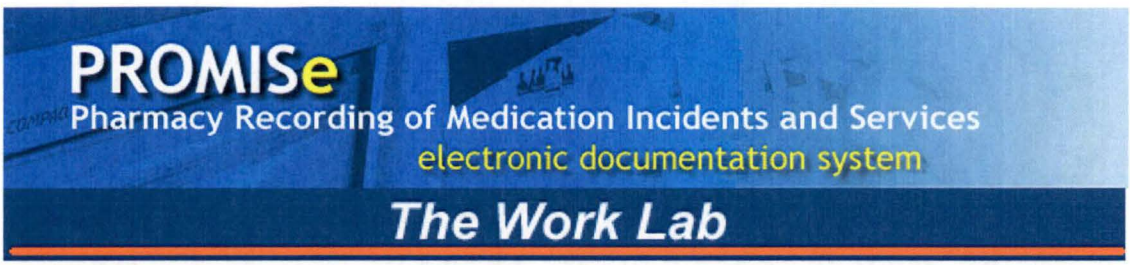
For my leisure activities

- A holiday / yacht / sports car or similar

Altruistic Purposes

- Donate to Charity or similar

9.5 Appendix 5: Pilot Study Information Technology Survey



PROMISe Pilot Study

Pharmacy Owner/Manager Information Technology Survey

This survey is designed to provide us some information about the computer system in your pharmacy and your pharmacy's use of Information Technology.

Name: _____

Pharmacy: _____

Pharmacy Owner(s): _____

1. About the Computer System at your pharmacy

1.1 Do you have someone in the pharmacy responsible for the computer system?

- Yes Go to next question
- No Go to question 1.3

1.2 How would you rate the IT skills of the person responsible for the computer system?

- Expert
- Pretty Good
- Gets by
- Novice

1.3 Do you have an agreement (formal or otherwise) with an IT service provider?

- Yes
- No
- Don't know

1.4 Do you have Microsoft Office® installed on a computer in your pharmacy?

- Yes
- No

If Yes, what version

- Office xp
- Office 2000
- Office 97
- Don't know
- Other (please specify) _____

1.5 Are the computers in the pharmacy networked?

- Yes
- No

1.6 Is you computer system protected by uninterrupted power supply (UPS)

- Yes
- No
- Don't know

1.7 Do you have a firewall?

- Yes
- No
- Don't know

1.8 Do you backup your data?

- Yes – How Often
  - Daily
  - Weekly
  - Monthly
  - Other
- No – go to question 1. 11

1.9 When did you last check that your backup worked?

- Never
- Last year
- Last month
- Last week

1.10 What types of files do you back up?

- Server
- All workstations
- Some workstations
- Financial records
- Patient records

1.11 Where do you keep your backup disks/tapes?

- On-site
- Off-site

1.12 Do you have Antivirus software?

- Yes – How often do you update it
  - Daily
  - Weekly
  - Monthly
  - Other
- No

1.13 Do you use login passwords for all your workstations?

- Yes
- No

1.14 Do you carry out regular maintenance on your computers?

- Yes
- No

1.15 Do you have the Internet connected?

- ♦ No
- ♦ On one computer
- ♦ On all of the network

1.16 What type of internet connection do you have?

- ♦ Dial up Modem
- ♦ ADSL/Broadband
- ♦ Satellite

1.17 Are you PKI enabled?

- ♦ Yes
- ♦ No
- ♦ Don't know

2. About the use of Computers in your pharmacy

2.1 Have you explored any of the following uses for IT? If so have these been successful?

Use for IT	Explored?	Has this been successful?
Finance and administration (e.g. MYOB)	♦ Yes ♦ No	♦ Yes ♦ No
Stock control and ordering	♦ Yes ♦ No	♦ Yes ♦ No
Managing customer information (e.g. Database for Baby Club)	♦ Yes ♦ No	♦ Yes ♦ No
Security (Shop surveillance)	♦ Yes ♦ No	♦ Yes ♦ No
Training for staff within pharmacy	♦ Yes ♦ No	♦ Yes ♦ No
Professional development	♦ Yes ♦ No	♦ Yes ♦ No
Marketing	♦ Yes ♦ No	♦ Yes ♦ No

2.2 Are you looking at using IT in any new areas, if so which?

- Yes Please specify

  _____

- No

2.3 Do you have any of the following software available in your pharmacy?

- eMims
- eAMH
- eAPP
- AusDI
- REX drug interactions
- Electronic Therapeutic Guidelines

- Other decision support or clinical information software (please specify)

_____

2.4 Which drug interactions program do you use to check for drug interactions?

- Built into dispensing system
- Other (please specify) _____

2.5 For the last piece of software you purchased how did you decide what to buy (you may tick more than one box)?

- Sales representative/vendor approach
- Peer recommendation
- Conference/Trade Fair
- Perceived ease of use
- Compatibility (with other software/hardware)
- Support provided
- Training
- Price
- Other, please specify _____

2.6 Which of the following statements best describes your approach to changing software?

- I am loathe to change software once it's implemented on my system
- I often look for better ways of doing things
- If it doesn't do/can't do what I want then I'll shop around
- I would change software if I could clearly see the benefit in doing so
- None of the above – any comment?

_____

2.7 On average how would you rate the proficiency of your staff in using IT?

2.7.1 Pharmacists

- Experts
- Pretty Good
- Get By
- Novice

2.7.2 Other Staff

- Experts
- Pretty Good
- Gets By
- Novice

***********End of Survey, Thank you for your Time***********

9.6 Appendix 6: Pilot Study Post Study Questionnaire

PROMISe
Pharmacy Recording of Medication Incidents and Services
electronic documentation system

UTAS
FACULTY OF HEALTH SCIENCE
School of Pharmacy

PROMISe Project Pilot Study

Post Study Questionnaire

Section 1. Demographics

Name: _____

Pharmacy: _____

1.1 Employment status:

- ❑ Pharmacist
  - ❑ Full-time
  - ❑ Owner
  - ❑ Part Time/ Locum/Casual
- ❑ Graduate Pharmacist

1.2 Did you attend the education session relating to this project, hosted by the University of Tasmania?

❑ Yes ❑ No

1.3 Did you view the training presentation on the CD provided in the manual for this project?

❑ Yes ❑ No

1.4 Did you undertake the validation case scenarios on the project website?

❑ Yes ❑ No

Section 2. Documentation of Clinical Services

2.1 Did you document your clinical services prior to this project?

❑ Yes ❑ No ❑ Sometimes

If Yes, where did you document these activities?

- ❑ Scraps of paper
- ❑ Dedicated book
- ❑ Patient file
- ❑ On computer, i.e *Notes section or* previous intervention recording software
- ❑ Other (*please specify*)_____

2.2 When you first heard about this project, what barriers did you perceive would prevent you from recording your clinical services? *You may select more than one option*

- ❑ lack of motivation
- ❑ workflow restrictions
- ❑ lack of clinical knowledge
- ❑ forgetfulness
- ❑ lack of time
- ❑ concerns about how the software would work
- ❑ none
- ❑ Other (*please specify*) _____

2.3 During the PROMISe Pilot Study, approximately what percentage of clinical services that you performed, do you believe that you documented?

- ❑ 100%
- ❑ 75%
- ❑ 50%
- ❑ 25%
- ❑ 10% or less

2.4 What barriers did you find in recording your clinical services?

You may select more than one

- ❑ lack of motivation
- ❑ workflow restrictions
- ❑ lack of clinical knowledge
- ❑ forgetfulness
- ❑ lack of time
- ❑ The software was difficult to use
- ❑ none
- ❑ Other (*please specify*) _____

2.5 During the PROMISe Pilot Study, what factors influenced which of your clinical services you documented? *You may select more than one option*

- ❑ higher perceived importance
- ❑ availability of time
- ❑ presence of observer
- ❑ Other (*please specify*) _____

Section 3. Time spent on Clinical Services

3.1 During the PROMISe Pilot Study, what proportion of your time at work was spent involved in clinical services (either documenting or sorting out actual or potential drug related problems)?

- ❑ Less than 5%
- ❑ 5 to 20%
- ❑ 20 to 50%
- ❑ More than 50%

3.2 During the PROMISe Pilot Study, how long (on average) do you think it took you to perform a single clinical service (including the documentation process)

- ❑ Less than 1 minute
- ❑ 2 to 5 minutes
- ❑ 6 to 10 minutes
- ❑ 11 to 30 minutes
- ❑ More than 30 minutes

Section 4. Payment for Clinical Services

4.1 Do you believe clinical services should be remunerated?

❑ Yes ❑ No

4.2 If payment for clinical services was implemented, rate each of the payment options below according to how much you would agree with that option. Also, please write an amount you think would be appropriate for each option

4.2.1 A payment to each ***pharmacy*** for each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.2 A payment to each ***pharmacist*** for each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.3 A payment to each ***pharmacy*** based on the total time spent on each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.4 A payment to each ***pharmacist*** based on the total time spent on each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.5 A set, across the board, payment for each *pharmacy* for documenting the services, unrelated to number or duration of services.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.6 An increase in the overall dispensing fee for all prescriptions to compensate for these "add on" services.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.7 An increase in the dispensing fee for original (non-repeat) prescriptions, as they are more likely to require the "add on" services.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.8 An increase in the dispensing fee for prescriptions for drugs with a high frequency of clinical services (eg warfarin).

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.7 Any other payment system that you would propose (please specify)?

Section 5. Your general opinions relating to clinical services

Place a cross ***anywhere*** on the line or tick the box to indicate your opinion on the following statements;

5.1 Documenting of cognitive services helps to demonstrate the ability of pharmacists to improve medication therapy.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.2 Documenting of cognitive services helps to demonstrate the ability of pharmacists to reduce health care costs.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.3 Participating in this project made me more aware of / focussed upon identifying Drug Related Problems.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.4 I believe that I would require an update in clinical knowledge in order to optimise my ability to identify Drug Related Problems.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.5 The cognitive service recording program was easy to use.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.6 The sequence for documenting a cognitive service, including accessibility to the interventions screen, was logical and easy to follow.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.7 The Classification system and options were logical and relevant.

Strongly agree ——————————— Strongly disagree ☐ Unsure

Section 6. Further Comments

If you wish to make further comments, regarding any aspect of the PROMISe Pilot Study, or any aspect of the software or training, please use the space below.

If you would rather that these comments be treated anonymously, please separate this sheet from the rest of the survey and return it in the second reply paid envelope attached

**********End of Survey**********

Thank you for your time

9.7 Appendix 7: PROMISe Study DOCUMENT Classification System with Scope Notes

D.O.C.U.M.E.N.T.

(a classification system for drug-related problems and their resolution)

1. Type of Drug Related Problem

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
D	**Drug selection** *(Problems related to the choice of drug prescribed or taken)*	Duplication	D1	***When to Use:*** *When there are no obvious adverse clinical effects of the two drugs together, but it is either inappropriate or very unusual to see them prescribed or used together as they are from the same therapeutic class* *This also covers the specific compliance situation where a person may be inappropriately taking two brands of the same drug.* **Examples of when to use:** • Patient prescribed ranitidine plus pantoprazole • Patient prescribed *Berotec* and *Ventolin* inhalers • Patient taking *Aratac* and *Cordarone* at the same time • Patient taking Vioxx sample provided by doctor as well as the Vioxx dispensed at the pharmacy ***When Not to Use:*** *If the drugs involved are not of the same therapeutic class, then use "Drug Interaction (D2)".*
D	**Drug selection** *(Problems related to the choice of drug prescribed or taken)*	Drug interaction	D2	***When to Use:*** *When there are no obvious adverse clinical effects of the drug interaction, but the interaction is serious enough to check if the doctor knows of it.* *When there is a likely serious interaction between the patient's existing therapy and a newly prescribed or used drug, but the patient hasn't yet commenced taking the new drug.* **Examples of when to use:** • Patient commenced on tramadol who is already taking fluoxetine • Patient ceases amiodarone while continuing on warfarin • Patient requests to purchase an over the counter antacid when taking tetracycline ***When Not to Use:*** *If the interacting drug is of the same therapeutic class as part of the patient's existing therapy, then use "Duplication (D1)".* *If the interaction is causing, or is suspected of causing a noticeable effect of any sort, then use "Caused by drug interaction (T2)".*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
D	**Drug selection** *(Problems related to the choice of drug prescribed or taken)*	Wrong drug	D3	***When to Use:*** *When the prescription was intended to mean a different drug and there was an error* *When the drug being taken was prescribed correctly but was dispensed as the wrong drug* **Examples of when to use:** • Patient supplied with and taking *Hydrea* 2 m, labelled as *Hydrene* 2 m • Doctor prescribes chlorpromazine 200mg bd but intended carbamazepine 200mg bd ***When Not to Use:*** *If the drug is felt to be inappropriate because of specific patient parameters such as poor renal function, then use "Other Drug selection problem (D0)".* *If the drug prescribed is unavailable for dispensing (either because your pharmacy has no stock or the manufacturer/distributor has no stock) then use "Non-clinical (N0)".*
D	**Drug selection** *(Problems related to the choice of drug prescribed or taken)*	Wrong dosage form	D4	***When to Use:*** *When the formulation of the product is inappropriate or incorrect in terms of the intended use of the product. Also covers the specific situation where an error by the prescriber results in an absurd set of instructions (eg, ventolin inhaler, apply three times a day).* **Examples of when to use:** • Vancomycin oral capsules prescribed to treat systemic infection • Ear drop product ordered or supplied for an eye problem ***When Not to Use:*** *If the patient has a <u>physical</u> problem with the administration of the dosage form as it is intended to be used (eg. swallowing a particular form of the medication whole, cannot appropriately insert suppositories, arthritis limiting the use of an inhaler) then use "Difficulty using dosage form (C4)".* *If the difficulty is related to a <u>technical</u> problem with the use of an administration device such as an aerohaler, then use "demonstration of device (E3)"* *If the difficulty is not a technical one, and related to <u>lack of understanding</u> of the use of the dose form, then use "Confusion about therapy or condition (E2)"*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
D	**Drug selection** *(Problems related to the choice of drug prescribed or taken)*	Previous ADR/allergy	D5	***When to Use:*** *When a drug or drug group is prescribed for the patient to which there has previously been a major adverse reaction.* **Examples of when to use:** A patient is prescribed *Augmentin Duo* who has a documented allergy to penicillins ***When Not to Use:*** *If a patient develops an adverse effect after commencing a drug, then "other adverse effect problem (T0)" would be the best code to use.*
D	**Drug selection** *(Problems related to the choice of drug prescribed or taken)*	Other drug selection problem (Specify)	D0	***When to Use:*** *When there is a contraindication to the use of a drug because of an underlying condition in the patient.* *When a less expensive or alternative brand is substituted purely for cost reasons* *When a drug is felt to be unnecessary based on the conditions the patient has.* *When the drug being used is out of date or deteriorated in some other way.* *When you believe a more effective drug is available and you suggest it instead of the current therapy.* **Examples of when to use:** • *Maxolon* prescribed and doctor contacted to change to *Pramin* • Patient has *Anginine* tablets for use that are over 2 years old and have been stored incorrectly. • Patient commenced omeprazole when they were taking *Celebrex* for a sore knee. *Celebrex* has been ceased, but they are still taking omeprazole. ***When Not to Use:*** *If a less expensive brand is substituted because the ordered brand is unavailable, then use "Non-clinical (N0)".*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
O	**Over or underdose Prescribed** *(Problems related to the prescribed dose or schedule of the drug)*	Dose too high	O1	***When to Use:*** *When the total daily dose of a medication prescribed is too high for the patient, either based on previous dosage or reference dose ranges.* *Includes the situation where the dose is too high because of a particular parameter of the patient such as renal function weight, age* *This includes situations where the dose that is prescribed is too high by unintentional error.* **Examples of when to use:** • Patient is prescribed *Diamicron MR* 180mg in the morning • Patient is prescribed dexamethasone 50mg daily (doctor was thinking of prednisolone dose) • Patient prescribed spironolactone 100mg bd for heart failure ***When Not to Use:*** *If the patient is taking too high a dose as a result of not following the appropriate directions, then use "Taking too much (C3)".*
O	**Over or underdose Prescribed** *(Problems related to the prescribed dose or schedule of the drug)*	Dose too low	O2	***When to Use:*** *When the dose prescribed is either too low based on reference dose ranges or too low based on previous therapy.* *This includes situations where the dose that is prescribed is too low by unintentional error* **Examples of when to use:** • Locum doctor prescribes *Karvea* 150mg daily , when previous therapy was meant to be 300mg daily • Prescription for prazosin 0.5mg bd for hypertension ***When Not to Use:*** *If the actual dose per day is suitable, but the duration is too short, then use "Other Dose problem (O0)"* *If the patient is taking too low a dose of a drug as a result of not following the appropriate directions, then use "Taking too little (C2)".*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
O	**Over or underdose Prescribed** *(Problems related to the prescribed dose or schedule of the drug)*	Wrong frequency	O3	***When to Use:*** *When the total dose of a medication is suitable, but the frequency or the dosage schedule is inappropriate.* **Examples of when to use:** • Simvastatin ordered as 40mg in the morning • *Diamicron MR* prescribed as three times daily • Phenytoin prescribed as 100mg three times a day, previously been on 300mg at night. ***When Not to Use:*** *If the frequency prescribed results in an excessively high a dose of the drug being prescribed, then use "Dose too high (O1)".* *If the frequency prescribed results in an excessively low dose of the drug being prescribed, then use "Dose too low (O2)"*
O	**Over or underdose Prescribed** *(Problems related to the prescribed dose or schedule of the drug*	Other **Dose** Problem (Specify)	O0	***When to Use:*** *When the duration of use of the product is too short or too long.* **Examples of when to use:** • Patient prescribed cephalexin 500mg tds for 3 days for cystitis. ***When Not to Use:*** *If the patient is not taking the appropriate dose of a product as a result of a lack of understanding of the dosage regimen, then a compliance related code would be more appropriate*
C	**Compliance** *(Problems related to the way the patient takes the medication)*	Potential drug abuse	C1	***When to Use:*** *When there is suspected overuse of a particular, potentially abusable, product is intentional. Includes the situation where the prescription appears to be a forgery.* **Examples of when to use:** • Patient presents a third prescription for Panadeine Forte within 2 weeks, each of the prescriptions was written by a different doctor. Patient lives in one town, sees a doctor for a prescription for oxazepam in another town and presents it for dispensing in a third town. ***When Not to Use:*** *If the overuse is due to an appropriate increase in use because of increased symptoms, then use "Condition not adequately treated (U1)"*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
C	**Compliance** *(Problems related to the way the patient takes the medication)*	Taking too little	C2	***When to Use:*** *When the patient uses too little of a medication as a result of forgetfulness or lack of understanding of the dosage regimen prescribed.* **Examples of when to use:** • Patient taking metformin only when required rather than regularly • Patient using *Transiderm-Nitro* patches only every few days, not regularly ***When Not to Use:*** *If the underuse is appropriate because of the resolution of symptoms or a condition, then use "Other Drug selection problem (D0)" and specify that the drug may no longer be required.* *If the patient has a physical problem with the administration of the dosage form as it is intended to be used (eg. swallowing a particular form of the medication whole, cannot appropriately insert suppositories, arthritis limiting the use of an inhaler)then use "Difficulty using dosage form (C4)"*
C	**Compliance** *(Problems related to the way the patient takes the medication)*	Taking too much	C3	***When to Use:*** *When the patient uses too much of a medication as a result of forgetfulness or lack of understanding of the dosage regimen prescribed.* **Examples of when to use:** • Patient presents requesting a second ventolin inhaler 11 days after the previous one was provided. • Patient continuing to take 50mg daily of prednisolone, had forgotten to commence a dose reduction schedule as instructed by the doctor. • Patient believes they have forgotten a medication and takes a second dose on the same day. ***When Not to Use:*** *If the overuse is due to an appropriate increase in use because of increased symptoms, then use "Condition not adequately treated (U1)"* *If the overuse consists of inappropriately taking two different brands or forms of the same ingredient unknowingly, then use "Duplication (D1)".*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
C	**Compliance** *(Problems related to the way the patient takes the medication)*	Difficulty using dosage form	C4	***When to Use:*** *When the patient has a physical problem with the administration of the dosage form or device as it is intended to be used (eg. swallowing a particular form of the medication whole, cannot appropriately insert suppositories, arthritis limiting the use of an inhaler)* **Examples of when to use:** • Patient cannot swallow her slow release diltiazem capsules • Patient with scoliosis cannot insert suppositories • Controlled release tablet ordered for a patient who must crush all oral medications ***When Not to Use:*** *If the difficulty is related to a technical problem with the use of an administration or monitoring device such as an aerohaler, then use "demonstration of device (E3)". If the difficulty is not a technical one, and related to lack of understanding of the use of the dose form, then use "Confusion about therapy or condition (E2)".*
C	**Compliance** *(Problems related to the way the patient takes the medication)*	Other Compliance Problem (Specify)	C0	***When to Use:*** *When the patient is aware of the way to take the drug, is physically able to take the drug, and understands its purpose, but does not wish to take it.* **Examples of when to use:** • Patient unwilling to use mirtazapine after reading the package insert. ***When Not to Use:*** *If the compliance issue results in two drugs of the same therapeutic class being taken inadvertently, then use "Duplication (D1)". If the patient does not wish to take the medication because it is causing an adverse event of some sort, then a toxicity or adverse event category (T) would be appropriate.*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
U	**Untreated indications** *(Problems relating to actual or potential conditions that require management)*	Condition not adequately treated	U1	***When to Use:*** *When the patient has a symptom or disease condition that is either not being treated, or not being treated adequately.* **Examples of when to use:** • Patient taking *Hydrene* and *Coversyl* for high blood pressure, but blood pressure continues to be high • Patient develops nausea as part of a viral illness and requires addition of antinauseant medication. ***When Not to Use:*** *If the patient requires additional therapy as a preventative strategy (eg potassium when on a loop diuretic), then use "Preventive therapy required (U2)".*
U	**Untreated indications** *(Problems relating to actual or potential conditions that require management)*	Other Untreated indication Problem (Specify)	U0	***When to Use:*** *When you think the patient has any other problem relating to actual or potential conditions that requires management.*
M	**Monitoring** *(Problems related to monitoring the efficacy or adverse effects of a drug)*	Drug levels	M1	***When to Use:*** *When, in the absence of any adverse effects, you believe that drug level monitoring is required.* **Examples of when to use:** • Elderly woman on digoxin, who has not had a blood test for two years • Patient on carbamazepine 200mg twice daily who has not had a blood test for 12 months. • Patient commenced on phenytoin 3 weeks ago and you recommend a blood level ***When Not to Use:*** *If the patient is experiencing an adverse effect of some sort, which you believe is due to elevated drug levels, then use "Caused by dose too high (T1)".* *If the need for drug level monitoring comes about as a result of a newly commenced drug, then use "Drug interaction (D2)". The monitoring then becomes a recommendation, not the primary problem.*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
M	**Monitoring** *(Problems related to monitoring the efficacy or adverse effects of a drug)*	Laboratory Monitoring	M2	***When to Use:*** *When, in the absence of any adverse effects, you believe that a laboratory test is required (e g. Potassium, creatinine, white cell count, INR)* *Also covers the situation where you undertake the monitoring in question and provide a recommendation following the result (eg INR monitoring and suggesting a change of warfarin dose)* **Examples of when to use:** • Patient recently increased frusemide dose from 40mg daily to 120mg daily without a change in potassium replacement. • Patient commenced on Amiodarone and you recommend a thyroid function test ***When Not to Use:*** *If there are adverse effects associated with the parameter, then use "Other Toxicity problem (T0)", and specify the parameter to be tested and the symptom or sign. (eg, patient with leg cramps, suggest magnesium level)* *If the need for laboratory level monitoring comes about as a result of a newly commenced drug, then use "Drug interaction (D2)". The monitoring then becomes a recommendation, not the primary problem.*
M	**Monitoring** *(Problems related to monitoring the efficacy or adverse effects of a drug)*	Non-Laboratory monitoring	M3	***When to Use:*** *When, in the absence of any adverse effects, you believe that non-laboratory monitoring is required. (eg BP, BSL, temperature, weight)* *Also covers the situation where the test is undertaken as a screening process* **Examples of when to use:** • A patient with heart failure has an appropriate increase in his dose of frusemide and you advise him to weigh himself each day for the next week. ***When Not to Use:*** *If you recommend monitoring of a parameter (eg weight, BSL) as a result of another drug problem, then that recommendation should be recorded in the Recommendation code section. The type of problem that leads to this recommendation may vary.*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
M	**Monitoring** *(Problems related to monitoring the efficacy or adverse effects of a drug)*	Other Monitoring Problem (Specify)	M0	***When to Use:*** *When the patient has another problem related to the monitoring of his drugs for either efficacy or adverse effects.* *When the patient should be having monitoring done, but has problems with attending the laboratory, or paying for the test or equipment needed.*
E	**Education or Information** *(Problems related to knowledge of the disease or its management)*	Patient drug information request	E1	***When to Use:*** *When the patient has a reasonable understanding of their condition, but requests further information about their medication.* **Examples of when to use:** • Patient requests information about alendronate and you provide a CMI ***When Not to Use:*** *If the patient requests information primarily about the disease state, rather than a drug, then use "Disease management or advice (E4)"* *If the patient does not request the information, but you discover that they need the information in the course of your routine dispensing, then use "Confusion about therapy or condition (E2)".* *If the request is not about a specific drug, but a therapeutic device, then use "Demonstration of device (D3)"*
E	**Education or Information** *(Problems related to knowledge of the disease or its management)*	Confusion about therapy or condition	E2	***When to Use:*** *When the patient does not understand the reasons for the use of a medication or a fundamental aspect of the condition they have, but they still take the medication as directed (ie correct dose and time)* **Examples of when to use:** • When providing a new prescription for metoprolol for a patient with newly diagnosed hypertension, you find that she believes that the drug may cure the condition and she can stop the drug in a few months. ***When Not to Use:*** *If the patient requests further information, then use either "Drug information request (E1)" or "Disease management or advice (E4)" as appropriate* *If the confusion would have (or did) resulted in a change in compliance (either taking too much or too little of the medication), then an appropriate compliance code should be selected.* *If the request is not about a specific drug, but a therapeutic device, then use "Demonstration of device (D3)".*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
E	**Education or Information** *(Problems related to knowledge of the disease or its management)*	Demonstration of device	E3	***When to Use:*** *When the patient has a technical problem with the use of an administration or monitoring device.(eg inhaler, BSL Monitor, turbuhaler)* **Examples of when to use:** • A patient is changed from a metered dose inhaler to an aerohaler and requests a demonstration of how to use the device. ***When Not to Use:*** *If the patient understands how to use the device, but has a physical reason for not being able to use it, then use "Difficulty using dosage form (C4)".*
E	**Education or Information** *(Problems related to knowledge of the disease or its management)*	Disease management or advice	E4	***When to Use:*** *When the primary purpose of the interaction with the patient was to inform them of critical aspects of the management or prevention of a disease or condition. Also covers the situation where the patient requests the information.* **Examples of when to use:** • You counsel a patient with heart failure about fluid restriction • You provide information about weight loss or smoking cessation for a person who has cardiovascular disease. ***When Not to Use:*** *If the patient request information primarily regarding a drug, then use "Drug information request (E1)".*
E	**Education or Information** *(Problems related to knowledge of the disease or its management)*	Other Education or Information Problem (Specify)	E0	***When to Use:*** *When another health care worker (e.g. a doctor or another pharmacist) requests information. Also covers any other education or information related problem.*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
N	**Non-clinical** *(Problems related to administrative aspects of the prescription)*	Not sub-classified	N0	***When to Use:*** *When an illegible prescription requires clarification.* *When the prescription does not meet PBS requirements.* *When the drug is unavailable from the manufacturer or is out of stock temporarily.* *When the dose of the medication is not specified on the prescription.* *When the prescriber is not authorised to prescribe that particular medication.* *When the patient has problems getting to pharmacy or collecting prescriptions.* **Examples of when to use:** • Physeptone 5mg tablets not available, substitute 10mg tablets with dose adjustment ***When Not to Use:*** *If a less expensive or alternative brand is substituted purely for cost reasons, then use "Other drug selection problem (D0)" and specify brand substitution for cost reasons.*
T	**Toxicity or Adverse reaction** *(Problems related to the presence of signs or symptoms which are suspected to be related to an adverse effect of the drug)*	Caused by dose too high	T1	***When to Use:*** *When the patient has signs or symptoms that suggest an adverse reaction that is likely to be dose related.* **Examples of when to use:** • Patient has increased their dose of tramadol and develops headache, sweating and agitation • Promethazine and amitriptyline together causing worsening of dry mouth • Patient prescribed diamicron MR three times daily and has significant hypoglycaemic symptoms ***When Not to Use:*** *If the patient does not have any signs or symptoms of adverse effects and you believe the dose is too high, then use "Dose too high (O1)"*
T	**Toxicity or Adverse reaction** *(related to the presence of signs /symptoms which are suspected to be related to an adverse effect of the drug)*	Caused by drug interaction	T2	***When to Use:*** *When the patient has signs or symptoms that suggest an adverse reaction that relates to the presence of an interacting drug* **Examples of when to use:** • Patient taking warfarin develops an elevated INR after commencing metronidazole • Patient taking perindopril and frusemide, who commences diclofenac and develops renal dysfunction ***When Not to Use:*** *If the patient has an interacting drug present, but there are no signs or symptoms of the interaction causing an adverse effect, then use "Drug interaction (D2)".*

Category (Type)		Sub-Type	Subtype Code	Scope Notes (When the code should be used, when not to use it and examples)
T	**Toxicity or Adverse reaction** *(Problems related to the presence of signs or symptoms which are suspected to be related to an adverse effect of the drug)*	Other Toxicity/Adverse Effect problem (Specify)	T0	***When to Use:*** *When the patient has signs or symptoms that suggest an adverse reaction that is likely to be related to a particular drug, but doesn't seem to be dose related or related to an interaction.* *Covers the situation where the patient develops an adverse reaction such as a rash after commencing a drug.* **Examples of when to use:** • Patient develops a rash after commencing on *Augmentin Duo* • Patient develops hypotension after commencing prazosin, even though the dose is controlling the prostatic hypertrophy ***When Not to Use:*** *Should not be used if there are no signs or symptoms of adverse effects.*

2. Actions to Investigate the Problem

What did the pharmacist do in order to sort out the problem? *Note 1: multiple actions are possible for one situation and each action may occur multiply* *Note 2: Each of these actions will have a time value allocated to them after the pilot study*	**Action**	**Code**	**Scope Notes** **(When the code should be used, when not to use it and examples)**
	Investigation: Written material	A1	**When to Use:** *When the pharmacist consults a textbook or other written reference material)* **Examples of when to use** • Printed versions of Martindale, AMH or PP guide **When Not to Use:** *If the reference material is electronically accessed from the local computer system, use "Investigation:software (A2)".*
	Investigation: Software	A2	**When to Use:** *When the pharmacist consults decision support software that is located on the computer or server in the pharmacy.* **Examples of when to use** • eMims, electronic AMH, Electronic therapeutic Guidelines **When Not to Use:** *If the electronic resource requires an internet connection to obtain it, then use "Investigation: Internet (A3)".*
	Investigation: Internet	A3	**When to Use:** *When the pharmacist consults decision support software that is located on the internet.* **Examples of when to use** • Pharmacist conducts a PubMed search • Pharmacist is a subscriber to an internet based set of resources such as Medscape, or a University library service **When Not to Use:** *If the information source is not from the internet, then use another investigation source (either A1, A2 , A4 or A5).* *If the internet is used to make email contact with another healthcare professional for assistance, then use "Investigation· Other (A5)".* *If the internet is used to make email contact with the National Prescribing Service or other State or National information support service, then use "Contacted State or National Drug information service (A4)"*

What did the pharmacist do in order to sort out the problem?	Action	Code	Scope Notes (When the code should be used, when not to use it and examples)
	Contacted Drug Information Service	A4	**When to Use:** *When the pharmacist contacts the National Prescribing Service or one of the State Drug Information Services for information.* **Examples of when to use** • Pharmacist emails the NPS to determine information about a new drug that has not yet been released. **When Not to Use:** *In the pharmacist contacts a colleague who they think may know something about the problem, then use "Investigation : Other (A5)".*
	Investigation: Other (specify)	A5	**When to Use:** *When the pharmacist consults another pharmacist or health professional to investigate the problem.* *When the pharmacist contacts the manufacturer or supplier of the product for information.* **Examples of when to use** • Pharmacist rings the pharmacy where the prescription was previously dispensed to clarify an issue. • Pharmacist contacts a colleague who works at the same pharmacy to clarify the problem. • Pharmacist contact the HIC to determine the details of a particular Authority script arrangement. **When Not to Use:** *If the health professional that is contacted is someone who works for the NPS or a state or national drug information service, then use "Contacted State or National Drug information service (A4)"*

What did the pharmacist do in order to sort out the problem?	Action	Code	Scope Notes (When the code should be used, when not to use it and examples)
	Contacted prescriber	A6	**When to Use:** *When the pharmacist needs to contact the prescriber in order to clarify the prescriber's intent, provide new information from a patient encounter or to discuss recommendations the pharmacist may wish to make.* **Examples of when to use** • Pharmacist rings the doctor to confirm that the dose increase for tramadol was intentional, as the patient was unaware of any change. **When Not to Use:** *If as a result of investigating the problem you refer the patient to the prescriber, but do not contact the prescriber first, then the referral is a recommendation and you should use "Refer to prescriber (R10)".*
	Discussion with patient or carer	A7	**When to Use:** *When a discussion with the patient takes place that is primarily aimed at clarifying a drug related problem.* **Examples of when to use** • Pharmacist receives a script from the patient and finds the dose is different from the last time the patient had the drug dispensed, then checks with the patient that the dose change was intentional. **When Not to Use:** *If the discussion with the patient is within the usual course of the prescription being received or giving out, then it is not considered an action. For example, "Can you please wait while I contact the doctor" is not a discussion with the patient/carer.*
	Corrected without discussion	A8	**When to Use:** *When the problem is a simple issue that requires correction (often administrative).*
	Other Action (specify)	A0	**When to Use:** *When the pharmacist undertakes any other investigation or activity in order to clarify the actual or potential drug related problem.* **Examples of when to use** • Pharmacist contacts the hospital to determine the dosages of the discharge drugs that were supplied.

3. Recommendations to Resolve the Problem

What did the pharmacist recommend as a solution to the problem? *Note 1: multiple recommendations possible for one situation*	**Recommendation**	**Code**	**Scope Notes** **(When the code should be used, when not to use it and examples)**
	Education or counselling session	R1	**When to Use:** *When the pharmacist conducts a detailed counselling or education session with the patient or carer that is specifically targeted at resolving the problem that has been identified.* *Includes the provision of a written summary of medications and their timing such as a medipal or medprof* **Examples of when to use** • Patient was not taking metformin correctly, pharmacist gave details of how to take it in relation to food, how long it lasts and also gave information regarding the complications and management of diabetes. **When Not to Use:** *If the discussion with the patient is to determine the nature of the problem, rather than propose a resolution recommendation or further education, then it is an investigative action and you should use "Discussion with patient or carer (A7)". Note that a conversation or discussion with the patient may involve both investigation of the problem ("discussion with patient/carer(A7)) and an education/counselling session to resolve the problem identified (Education/counselling session (R1)*
	Dose change	R2	**When to Use:** *When the pharmacist recommends that the total daily dose of the medication is either increased or decreased.* **Examples of when to use** • Pharmacist recommends that the dose of *Diamicron MR* be reduced. **When Not to Use:** *If the total daily dose of the product does not change, but you recommend the schedule changes, then use "Dose frequency or schedule change (R9)".*

What did the pharmacist recommend as a solution to the problem?	Recommendation	Code	Scope Notes (When the code should be used, when not to use it and examples)
	Drug cessation	R4	**When to Use:** *When the pharmacist suggests that the drug is ceased, either temporarily or permanently.* **Examples of when to use** • Pharmacist suggests patient does not take a medication for a day and to go to the doctor to discuss the problem. Note in this case you should also select "Refer to prescriber (R10)" **When Not to Use:** *If the drug dose is changed or some other manipulation of the drug or dose is undertaken, then the appropriate code should be used.* *If a drug is stopped in order to start another one for the same indication, then use "Drug change (R3)"*
	Drug formulation change	R5	**When to Use:** *When the active ingredient of the medication and its total daily dose is not changed, but the formulation is changed.* **Examples of when to use** • Pharmacist suggests a change from a metered dose inhaler to an aerohaler • The pharmacist suggests a change from cream to ointment as the cream is not available **When Not to Use:** *If the formulation change also results in a change in the total daily dose of the medication, then use "Dose change (R2)".*
	Monitoring: non-laboratory	R6	**When to Use:** *When the pharmacist suggests that the patient undertake some non-laboratory monitoring for efficacy or adverse effects from the medication* **Examples of when to use** • Pharmacist suggests the patient weigh themselves daily while they are taking an increased dose of frusemide for heart failure. **When Not to Use:** *If the monitoring involves laboratory-based test of some sort, then use "Monitoring: Laboratory test (R12)".*

What did the pharmacist recommend as a solution to the problem?	Recommendation	Code	Scope Notes (When the code should be used, when not to use it and examples)
	Drug brand change	R8	**When to Use:** *When the pharmacist suggests a change in brand of the drug (same drug same dose).* **Examples of when to use** • Maxolon unavailable, pharmacist suggests that Pramin could be substituted. **When Not to Use:** *In the change in brand is to a different formulation of the same active ingredient, then use "Drug formulation change (R5)".*
	Dose frequency/schedule change	R9	**When to Use:** *When the total daily dose of the product remains the same, but the pharmacist suggests a change in the number of times a day, or the timing of the doses each day.* **Examples of when to use** • Pharmacist suggests changing valproate from 1g twice daily to 500mg four times daily to reduce gastric upset. • Pharmacist suggests change in timing of Isosorbide mononitrate from morning to night to cover unstable angina during the night. **When Not to Use:** *When the change results in a change in the total daily dose of the medication, use "Dose change (R2)"*
	Refer to prescriber	R10	**When to Use:** *When the problem is of sufficient seriousness for the patient to see the prescriber again in order to resolve the problem* **Examples of when to use** • Patient presents with a rash from the recently commenced antibiotics. You tell the patient to cease the capsules and refer her back to the prescriber for some different antibiotics. Note should also select "Drug Change (R3)" and "Drug cessation (R4)". **When Not to Use:** *If the patient goes back to the prescriber simply to get a new prescription, as a result of you discussing the problem with the prescriber then this code should not be selected.* *If the pharmacist discusses other issues with the prescriber, this is an action and you should select "contacted prescriber (A6)".*

What did the pharmacist recommend as a solution to the problem?	Recommendation	Code	Scope Notes (When the code should be used, when not to use it and examples)
	Monitoring: Laboratory test	R12	**When to Use:** *When the pharmacist suggests to the prescriber that they undertake some laboratory monitoring for efficacy or adverse effects from the medication.* **Examples of when to use** • You contact the prescriber to suggest that he check the INR in a patient taking warfarin who has commenced amiodarone. **When Not to Use:** *If the monitoring relates to a test that can be done at home (eg BSL) then use "Monitoring non-laboratory (R6)".*
	Refer for medication review	R13	**When to Use:** *When the pharmacist commences the process for a Home Medicines Review for the patient.* **Examples of when to use** • You recommend a HMR for patient who has significant problems with understanding of their medications. **When Not to Use:** *When you undertake an "ad hoc" review of the medications and generally assist with the patient's understanding, use "Education Counselling session (R1)"*
	Commence dose administration aid	R14	**When to Use:** *When you suggest the use of a dose administration aid such as a Dosette box or a Webster pack.* **Examples of when to use** • You recommend a Webster pack for a patient who has significant problems with understanding of the schedule and timing of their medications. **When Not to Use:** *If you provide a written summary of the patients medications and their schedule (eg medprof or mediPal) in addition to the dose administration aid, then also select "Education/Counselling session (R1)".*
	Other recommendation (specify)	R15	**When to Use:** *When the pharmacist makes any other recommendation that is not mentioned on this list to resolve the problem.*

4. Acceptance of Pharmacist's Resolution of the Problem (Outcome)

Did the clinical activity actually result in a change of management, or was the suggestion deemed not relevant in this case? *Note 1: If at the time of clinical activity the outcome is not known, the incident is flagged for later addition of the outcome.* That is: **Were the pharmacist's recommendations implemented?**	**Outcome**	**Scope Notes** **(When the code should be used, when not to use it and examples)**
	Unknown	**When to Use:** *When the pharmacist is unaware of what happened after he made the recommendation(s).* **Examples of when to use** • You suggest that the patient go and see the doctor and they say they will think about it. • You leave a message for the doctor to contact the patient about a problem.
	Accepted	**When to Use:** *When all of the recommendation(s) that the pharmacist makes are accepted* **Examples of when to use** • You contact a doctor to suggest reduction of the dose of tramadol and he accepts your suggestion. • You take the time to explain fully the medications and disease a patient has (Education Counselling (R1)). **When Not to Use:** *If you make multiple recommendations and not all of them are accepted, then use "Partially Accepted"*
	Partially Accepted	**When to Use:** *When the pharmacist makes multiple recommendations, and only some of the recommendations that were made are accepted.* **Examples of when to use** • You contact a doctor to suggest reduction of the dose of digoxin and a repeat blood level of digoxin. He agrees with the reduction in dose, but thinks the blood level would be a waste of time. • You suggest to the patient that they withhold their ibuprofen for a few days and go back to the doctor and ask for a different medication. They decide to stop the drug for a while, but choose not to go to the doctor.
	Not accepted	**When to Use:** *When all of the recommendation(s) that the pharmacist makes are rejected* **Examples of when to use** • You contact a doctor to suggest reduction of the dose of tramadol and he says that he still wants to use that dose as the patient's pain warrants it.

5. Clinical Significance of the Problem

If the pharmacist had not intervened/provided a clinical activity, what was the possible/potential outcome if therapy had continued? (a subjective rating, predicting the clinical severity if action was not taken). That is: **How serious was/could have been the problem?** *Note 1: Situations rated as high (S4) will require additional information to be entered into a notes field*	**Significance**	**Code**	**Scope Notes**
	Nil	S0	**When to Use:** When there is no consequence to the patient. **Examples:** • Prescription incomplete, contacted doctor and obtained directions
	Low	S1	**When to Use:** When the consequence to the patient are related to costs or information only **Examples:** • Pramin substituted for Maxolon • Provided CMI on *Fosamax* at request of patient.
	Mild	S2	**When to Use:** When the consequences to the patient are that they have improved a minor symptom, or if the intervention had not occurred they would have developed a minor symptom. The symptom should be such that it does not require a doctor's visit to treat. **Examples:** • Patient commences on a codeine based analgesic and you recommend to take prophylactic stool softeners
	Moderate	S3	**When to Use:** When if the intervention did not occur, it was likely that the patient would have had to go to the doctor because of the consequences. Also covers the situation where you need to refer the patient to the doctor because of the seriousness of the situation. **Examples:** • The patient was inadvertently taking twice the dose of sulphonylurea tablets and would have developed hypoglycaemia that required a trip to the GP to treat the symptoms.
	High	S4	**When to Use:** When if the intervention did not occur, it was likely that the patient would have had to go to a hospital because of the consequences. Also covers the situation where you need to refer the patient to a hospital because of the seriousness of the situation. When if the intervention did not occur, it was likely the patient would have had to receive assistance from a regular nurse visit, or would have had to been placed into residential care of some sort. Also includes the situation where the intervention prevents the additional nursing care or delays the admission to residential care. **Examples:** • The patient was inadvertently taking double the dose of amiodarone and was taking warfarin. Presented with bleeding.

5. Other Information Regarding the Problem

Notes	This section is to add free text notes, to more thoroughly explain action(s) or the reason(s) for them. *Note 1: Notes may be required to clarify any of the "other" categories in the Type, Action and Recommendation sections* *Note 2: Situations rated as of high clinical significance will require additional information such as other drugs, any medical information, reasons for perceived severity.*	
Time	How long did it take to perform the clinical activity? (Approximate time spent conducting the clinical activity) *Note 1: If values have been assigned for the various activities that are timed, this could be a summation function which would not need to be entered.*	minutes

9.8 Appendix 8: PROMISe Study Pharmacy Enrolment Information

Dear

Potential Participation in PROMISe Project

The PROMISe project, is investigating the recording of community pharmacist's clinical interventions. This project is funded by the Pharmacy Guild of Australia and is being carried out by the Unit for Medication Outcomes Research and Education, based at the University of Tasmania.

All WiniFRED users in the Melbourne area are being approached to participate in a three week data collection period in April 2005. Pharmacies and pharmacists will be remunerated appropriately for their time and for each intervention documented. Each pharmacist participating will be paid $420 to participate in the training and orientation sessions and each pharmacy will receive a participation fee of $500. In addition, pharmacies will be remunerated ($15) for half of the interventions that they document during the test period. Based on our pilot studies, the average remuneration for interventions would be $60 (4 interventions) per 100 prescriptions. Therefore in a pharmacy which employs 3 pharmacists and dispenses 200 prescriptions a day participation in the trial could result in as much as $2000.

The participating pharmacies will have an update installed on their dispensing system which allows the electronic recording of interventions. Full training will be provided to each pharmacist participating, this will take between 4 and 6 hours, at least half of the training can be completed online at the participants own pace.

Interventions by community pharmacists occur commonly and are not currently recorded. With an easy to use recording system, such as the DOCUMENT system, used in the PROMISe project, there is potential that in the future recording these interventions may attract remuneration.

Full software and technical support will be provided by PCA/Nu systems. There will be regular visits by members of the UMORE project team to assist with any other issues with the DOCUMENT system.
More information about the project can be found at www.promise.id.au

Pharmacy Enrolment Form

If you are interested in participating, please return the by fax to (03) 62267627 or email as an attachment, with the relevant changes, to PROMISe team

The following information will be used only to stratify your pharmacy within the population of pharmacies that will be considered for participation. No information will be divulged to parties other than the direct members of the research team.

Pharmacy Name		
WiniFRED Site Number (if known)		
Contact person (the main pharmacist actively involved in PROMISe)		
1. Which of the following describes the location of this pharmacy?	**Location**	**(Type Y in the relevant box)**
	Local shopping centre (<25 shops)	
	Major shopping centre (>25 shops)	
	Strip	
	Medical Centre	
	Hospital	
	Other (please specify)	
2. How many hours and days per week is the pharmacy open	Total number of hours per week	
	Number of days each week	
3. PROMISe II will run for three weeks, how many regular pharmacists would there be working during this period?		
4. How many dispensing terminals operate in your pharmacy?	**Number of Terminals**	**(Type Y in the relevant box)**
	One	
	Two	
	Three	
	Four or more	
5. What operating system does the dispensing computer operate on	**Operating System**	**(Type Y in the relevant box)**
	Windows xp	
	Windows 2000	
	Windows 98 or earlier	

Thank you for your interest, we will contact you in the near future with further details The PROMISe Project Team

9.9 Appendix 9: PROMISe Study Clinical Problem Solving Tool

PROMISe
Pharmacy Recording of Medication Incidents and Services
electronic documentation system

Peter Tenni

Draft Case Study for Clinical Problem Solving Assessment

Instructions

The following powerpoint presentation is built with hyperlinks attached to the various selections. As you select an option, you will be taken to another point in the presentation, where you select another option and so on.
Scoring the case will depend on the number of problems you identify along the way, and the recommendations you make to resolve any problems you identify.
Please be careful to not inadvertently move forward or back a slide, as this will take you out of your loop into some other place.
You may find it useful to take note of the route you take through the presentation (note the number in the top left hand corner) and also keep track of useful information that you find out along the way.

Click below to Start

?

1

A 54 year old man presents you with a new prescription for Avandia (Rosiglitazone) 4mg twice daily. He has taken the rosiglitazone at a dose of one daily for the last month, and tells you that he has just been to the doctor, who said to increase to twice daily. He also has a new prescription for frusemide 20mg daily which he needs dispensed.

Which ONE of the following would you do first?

A Find out from the patient his previous treatment for diabetes, more information regarding other medical conditions and symptoms, and recent BSLs.

B Dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C Contact the prescriber, primarily to find out the reason for the addition of the frusemide.

D Contact the prescriber, primarily to find out current liver function tests.

1a

Peter Tenni

You find out that the patient has been on glibenclamide, which originally started at once daily, but has been increased gradually to 10mg bd over the last 3 years. His BSLs have increased over the last three years (now in the 8s and 9s), and the doctor has recently added Avandia in an attempt to control them. He has had unstable angina and atrial fibrillation in the past. His other current medications are:

- Isosorbide Mononitrate 60mg m
- Digoxin 125mcg m
- Glyceryl trinitrate spray prn
- Glibenclamide 10mg bd
- Aspirin 100mg m
- Metoprolol 50mg bd

Which ONE of the following would you now do?

A Contact the prescriber, primarily to find out the patient's blood pressure and heart rate.

B Dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C Contact the prescriber, primarily to discuss the addition of frusemide and possible causes of his oedema.

D Contact the prescriber, primarily to inform him that beta blockers are contraindicated in diabetes.

1b

When you talk to him about monitoring, he tells you that he tests his BSL once daily regularly. The results have been in the 8s and 9s for the last 6 months or so, and the doctor hopes that this new medication will start to have an effect. For the moment, he feels that there has been no real change.

Which ONE of the following would you now do?

A Find out from the patient his previous treatment for diabetes, more information regarding other medical conditions and symptoms, and recent BSLs.

B Provide him with the medications and reassure him that they will start to work in a month or so.

C Contact the prescriber, primarily to find out the reason for the addition of the frusemide.

D Contact the prescriber, primarily to discuss the patient's diabetes management and to obtain a HbA_{1C} result.

1c

Peter Tenni

The prescriber tells you that the patient has developed mild swelling of the ankles and mild shortness of breath (although he is overweight) and that he feels the addition of frusemide is warranted. He thinks that the patient may be developing some early heart failure as a result of his underlying cardiac conditions (hypertension, AF and IHD).

Which ONE of the following would you now do?

A Continue the discussion with the doctor, primarily to discuss the patient's diabetes treatment.

B Dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C Continue the discussion with the prescriber primarily to determine the heart rate and blood pressure.

D Continue the discussion with the prescriber primarily to discuss other possible causes of the patient's oedema.

1d

The doctor is aware that rosiglitazone may cause liver dysfunction. He tells you that this patient's liver function tests were normal before commencement of rosiglitazone and are due to be checked again next week.

Which ONE of the following would you now do?

A Continue the discussion with the prescriber, primarily to find out the patient's past medical history, other medications and BSL results.

B Dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C Continue the discussion with the prescriber, primarily to find out the reason for the addition of the frusemide.

D Continue the discussion with the prescriber, primarily to discuss the patient's diabetes management and to obtain a HbA1C result.

2a

Peter Tenni

Blood Pressure is 148/98mmHg and heart rate is 65bpm and irregularly irregular.

Which ONE of the following would you now do?

A Contact the prescriber, primarily to discuss antihypertensive management.

B Dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C Contact the prescriber, primarily to find out the reason for the addition of the frusemide.

D Contact the prescriber, primarily to find out the patient's past medical history, other medications and BSL results.

2b

The prescriber is somewhat taken aback, as the patient has had diabetes for a number of years and no-one has ever had a problem with him being on beta blockers. He tells you that he would rather continue with the beta blockers as they are probably helping with his ischaemic heart disease, AF and blood pressure.

Which ONE of the following would you now do?

A Continue the discussion with the prescriber, in order to find out the patient's current blood pressure and heart rate.

B Dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C Continue the discussion with the prescriber, in order to find out the reason for the addition of the frusemide.

D Continue the discussion with the prescriber, primarily to discuss the patient's diabetes management and to obtain a HbA1C result.

2c

Peter Tenni

When you are giving out the medications, the patient asks you if you know of any side effects of the new medications (the Avandia and the frusemide), as his leg swelling has only started in the last month.

Which ONE of the following would you now do?

A Look up side effects of the two drugs in eMIMS.

B Tell the patient that the main side effects of frusemide are based on fluid and electrolyte loss, and that those of rosiglitazone are related to hypoglycaemia.

C Contact the prescriber, primarily to find out the reason for the addition of the frusemide.

D Tell the patient that these are both well tested drugs and that side effects are rare.

2d

The doctor tells you that his diabetes control has gradually waned over the last three years, despite increases in his sulphonylurea dose. The patient's most recent HbA_{1C} was 7.8%. The prescriber has added rosiglitazone as he understands it is supposed to be less likely to cause hypoglycaemia and weight gain.

Which ONE of the following would you now do?

A Accept that the diabetes control is reasonable and dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

B Suggest alternative management of his diabetes as this result indicates poor control.

C Suggest alternative management of his diabetes as adverse effects of his current management are evident.

2e

Peter Tenni

You point out to the doctor, that although the patient may well have early heart failure, that there may be drug related reasons for the recent development of oedema. He asks you which of the patient's drugs would be most likely to have caused oedema, or caused early heart failure to develop.

Which ONE of the following would you suggest?

A Metoprolol is contraindicated in heart failure and may worsen the symptoms of early heart failure.

B The combination of metoprolol and digoxin may be causing bradycardia, which may exacerbate sub-clinical heart failure and cause clinical oedema.

C The rosiglitazone may be contributing to his oedema.

D The use of Aspirin, being a non-steroidal antiinflammatory agent, may contribute to his oedema

2f

The prescriber is somewhat taken aback, as the patient has had diabetes for a number of years and no-one has ever had a problem with him being on beta blockers. The patient monitors his glucose often and finds that he does not get hypoglycaemic events very often.
He tells you that he would rather continue with the beta blockers as they are probably helping with his ischaemic heart disease, AF and blood pressure.

Which ONE of the following would you now do?

A Continue the discussion with the prescriber, primarily to discuss the patient's diabetes management and to obtain a HbA1C result.

B You are happy with the doctor's explanation. Return to the case study to examine a different problem.

C You are happy with the doctor's explanation. **End the case here.**

3a

Peter Tenni

Avandia

MIMS Abbreviated Prescribing Information
Rosiglitazone maleate
GlaxoSmithKline Australia
Section: 6[e] Hypoglycaemic agents - Endocrine and Metabolic Disorders
Pregnancy Category: B3*
ADRAC
Permitted in sport

Use: Thiazolidinedione. Type 2 diabetes; monotherapy or + sulfonylureas or metformin
Precautions: Ovulation resumption in insulin resistance (eg polycystic ovaries); heart failure incl risk of; monitor hepatic function; switching therapy from troglitazone; moderate to severe hepatic impairment; pregnancy, lactation, children
Adverse Reactions: Oedema; hepatic effects; hypercholesterolaemia; anaemia; weight gain; others, see full PI
Interactions: CYP450

Lasix

MIMS Abbreviated Prescribing Information
Frusemide
Aventis Pharma
Section: 2[c] Diuretics - Cardiovascular System
Product Images: Lasix 40 mg, Lasix M 20 mg
Pregnancy Category: C*
ADRAC
Banned in sport

Use: Loop diuretic. Oedema; hypertension; rapid diuresis (inj)
Contraindications: Renal shutdown; increasing azotaemia, oliguria; hepatic coma; electrolyte depleting conditions; sulfonamide sensitivity; severe untreated hypokalaemia, hyponatraemia, hypovolaemia, hypotension; infants with jaundice; bolus inj; lactation
Precautions: Potassium supplementation; metabolic alkalosis; hepatic cirrhosis, ascites; hypoproteinaemia; severe renal impairment; concomitant curare; surgery; prolonged use, high doses; monitor fluids, electrolytes, calcium, glucose, renal function; prostatic hypertrophy, micturition disorders; sodium restriction; diabetes; SLE; gout; elderly; pregnancy, premature infants
Adverse Reactions: Electrolyte imbalance incl decreased K, Ca, Mg; ototoxicity; hypovolaemia; GI upset; dizziness; rash; jaundice, elevated transaminases; haematological reactions (rare); others, see full PI
Interactions: Cardiac glycosides; steroids; salicylates; neuromuscular blockers; lithium; antibiotics; anticonvulsants; ethacrynic acid; cisplatin; NSAIDs; sucralfate (+/- 2 hours); other antihypertensives esp ACE inhibitors; others, see full PI

Oedema related to rosiglitazone use

Which ONE of the following would you now do?

A Provide the patient with copy of this information and ask him to go back to the doctor regarding his need for frusemide. **End the case here.**

B Contact the prescriber to discuss the patient further.

3b

The patient is concerned, because he knows that the Avandia is a relatively new drug and that it has some "nasty side effects", most importantly liver disease. He asks you if he could please have a copy of any information relating to this new drug.

Which ONE of the following would you now do?

A Look up side effects of Avandia in eMIMs and provide a copy to the patient.

B Tell him that the doctor is aware of the problems with the Avandia and if he wants more information he should talk to his doctor. **End the case here.**

C Reaffirm with the patient that the drugs are safe and that the doctor is monitoring for any problems. **End the case here.**

3c

Peter Tenni

The doctor is aware that his recent management requires improvement and it is for this reason that he has added the rosiglitazone. He doesn't feel that a month is enough time to give it a chance to show its full effect, and would prefer to continue for another month, with appropriate monitoring of BSLs and then he will re-check the HbA_{1C} after this.

Which ONE of the following would you now do?

A Suggest that although rosiglitazone may improve his diabetes management, there are more effective alternatives.

B Accept the doctor's plan of action and dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C Suggest that although rosiglitazone may improve his diabetes management, the rosiglitazone may be causing an adverse effect that requires management.

3d

The doctor does not think that his oedema is related to his beta blocker, heart rate or aspirin use. His last blood pressure was 148/98mmHg and his heart rate was 65bpm. He intends to continue the metoprolol, digoxin and aspirin unless there is a valid reason to re-consider their use.

Which ONE of the following would you now do?

A Continue the discussion with the prescriber, primarily to discuss antihypertensive management.

B Accept the doctor's plan of action and dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

C The rosiglitazone may be contributing to his oedema.

D Continue the discussion with the doctor in order to find out more about the patient's other medical problems.

3e

Peter Tenni

You discuss the issue of cholesterol with the patient.

He tells you that he has had several cholesterol tests in the past, and his doctor is amazed at how good his levels are, given his weight. His last test was only last month, when he started the new antidiabetic medication. He maintains a healthy diet as much as possible, but has found it difficult to lose any weight.

Which ONE of the following would you now do?

A Reassure the patient that his cholesterol is being managed appropriately and to continue his healthy diet. **Return to Case to select another issue.**

B Contact the doctor to suggest the addition of a HMG Co-ASE inhibitor to the patient's management.

C Advise the patient that there are some new anti-obesity agents available and that he may wish to discuss these with his doctor.

D **End the case here.**

3f

You discuss the issue of digoxin blood levels with the patient.

He tells you that he has only ever had one or two levels since he started digoxin around 4 years ago. The patient finds that when he goes to the doctor, he is mostly concerned about his heart rate. His last heart rate that he can remember is 65bpm.

Which ONE of the following would you now do?

A Reassure the patient that his digoxin is being managed appropriately and reconfirm that he is aware of digoxin adverse effects to look for. **Return to Case to select another issue.**

B Contact the doctor to suggest a digoxin level as his heart rate is too low for someone with AF.

C Contact the doctor to suggest a digoxin level as there have been significant reductions in the reference ranges in most laboratories.

D **End the case here.**

4a

Peter Tenni

The doctor does not agree that anything other than insulin would be more effective than an insulin sensitiser such as rosiglitazone and does not wish to alter his plan of management unless there is a specific reason to do so.

Which ONE of the following would you suggest?

A Accept the doctor's plan of action and dispense the prescription as written with appropriate counselling regarding monitoring of BSLs in diabetes.

B Suggest that although rosiglitazone may improve his diabetes management, the rosiglitazone may be causing an adverse effect that requires management.

4b

You point out that he has a history of AF and is currently managed with digoxin, metoprolol and aspirin. His current heart rate is 65bpm and he is still in AF.
The main issue you have with his AF treatment is which of the following?

A His heart rate should be slower, and his dose of digoxin or metoprolol should be increased, or a CCB should be added.

B The fact that he is still in AF means his treatment is inadequate and he should commence on amiodarone in preference to the digoxin.

C Given his risk factors for stroke, he should be fully anticoagulated.

D His AF management is fine, select a different problem to discuss.

4c

Peter Tenni

The doctor is aware of the patient's current weight and cholesterol and the impact of these factors on cardiovascular disease. He is monitoring the cholesterol level and the patient's weight closely, and does not feel that either of these factors warrant drug treatment at this stage. He is hoping that with improved glucose control, that his lipids may be even better controlled and that his weight may fall.

Which ONE of the following would you suggest?

A Accept the doctor's plan of action. Reassure the patient. **Return to case to select another issue.**

B **End the case here.**

4d

The doctor is aware of the requirement for digoxin monitoring and the recent change in reference range of digoxin in most laboratories. He points out that the reduced range applies to patients with heart failure without AF, and that the levels have not been reduced as markedly for AF patients. He is aiming to maintain his heart rate below 70bpm with his current digoxin and metoprolol therapy.

Which ONE of the following would you suggest?

A Accept the doctor's plan of action. Reassure the patient. **Return to case to select another issue.**

B **End the case here.**

5a

Peter Tenni

You have identified one of the major problems in this case study.

- He has hypertension that requires improved management.

Which ONE of the following recommendations do you think would be most appropriate?

A Increase his dose of metoprolol to 100mg bd and monitor BP.

B Add verapamil at a dose of 160mg daily and monitor BP.

C Add perindopril at a dose of 2mg daily and monitor BP.

D Add bendrofluazide at a dose of 10mg daily and monitor BP.

E Increase the dose of frusemide to 80mg each morning.

Are there any other problems you wish to address in this case?

1 No finish the case here

2 Yes, return to case study

5b

You have identified one of the major problems in this case study.

- He has oedema, for which the doctor has prescribed frusemide, and this may be induced by rosiglitazone.

Which ONE of the following recommendations do you think would be most appropriate?

A Cease the rosiglitazone and substitute acarbose to manage his diabetes.

B Reduce the dose of rosiglitazone and see if his oedema improves.

C Cease the rosiglitazone and substitute insulin to manage his diabetes.

D Cease the rosiglitazone and substitute metformin to manage his diabetes.

E Continue the rosiglitazone, and treat the oedema as required with frusemide.

Are there any other problems you wish to address in this case?

1 No finish the case here

2 Yes, return to case study

5c

Peter Tenni

You have identified one of the major problems in this case study.

- He has atrial fibrillation with significant other risk factors for stroke and should be fully anticoagulated.

Which ONE of the following recommendations do you think would be most appropriate?

A Commence enoxaparin and warfarin, cease the enoxaparin when warfarin reaches a therapeutic INR

B Commence warfarin and cease aspirin when INR reaches therapeutic range

C Add clopidogrel to the aspirin, this is much safer than adding warfarin.

D Commence warfarin and continue aspirin.

E Substitute clopidogrel for the aspirin and this should be sufficient.

Are there any other problems you wish to address in this case?

1 No finish the case here

2 Yes, return to case study

6a

54year old man with diabetes, hypertension, oedema, unstable angina and atrial fibrillation.
Prescribed
- Rosiglitazone 4mg bd
- Frusemide 20mg m
  - Isosorbide Mononitrate 60mg m
  - Digoxin 125mcg m
  - Glyceryl trinitrate spray prn
  - Glibenclamide 10mg bd
  - Aspirin 100mg m
  - Metoprolol 50mg bd

Which of the following issues would you like to discuss next (besides those you have already addressed)?

A Blood pressure management

B Use of beta blockers in diabetes

C Treatment of his AF

D Lipid levels

E Need for a digoxin level

F Need for regular liver function tests

G Diabetes management

7a

Peter Tenni

Recommendations for Hypertension Management

A Increase his dose of metoprolol to 100mg bd and monitor BP.
His heart rate is 65bpm and a further reduction may increase beta blocker symptoms

B Add verapamil at a dose of 160mg daily and monitor BP.
His heart rate is 65bpm and in combination with his digoxin and beta blocker may cause bradycardia. He also already has oedema which could be exacerbated by verapamil

C Add perindopril at a dose of 2mg daily and monitor BP.
ACEIs are the drugs of choice in diabetic patients with hypertension due to their renoprotective effects.

D Add bendrofluazide at a dose of 10mg daily and monitor BP.
A lower dose than this may be suitable, but at this dose, thiazides may have adverse consequences on glucose management.

E Increase the dose of frusemide to 80mg each morning.
Frusemide is generally considered too short acting to have a long-lasting effect on blood pressure and should be reserved for management of oedema.

1 Back to Case to find more problems

2 No finish the case here

7b

Recommendations for Diabetes Management

A Cease the rosiglitazone and substitute acarbose to manage his diabetes.
Acarbose would be less effective and is more suited to postprandial hyperglycaemia

B Reduce the dose of rosiglitazone and see if his oedema improves.
May be a suitable alternative, but his BSLs require improvement.

C Cease the rosiglitazone and substitute insulin to manage his diabetes.
Is a major lifestyle change, but may be suitable if oral therapy is proven ineffective.

D Cease the rosiglitazone and substitute metformin to manage his diabetes.
This is the most appropriate initial step, with monitoring of renal function, BSLs and oedema. If ineffective, then insulin may be necessary.

E Continue the rosiglitazone, and treat the oedema as required with frusemide.
A reversible exacerbating factor for heart failure should be addressed wherever possible, rather than treating the symptom.

1 Back to Case to find more problems

2 No finish the case here

7c

Peter Tenni

Recommendations for AF Management

A Commence enoxaparin and warfarin, cease the enoxaparin when warfarin reaches a therapeutic INR.
Anticoagulation is not urgent, so no real requirement for enoxaparin to be used initially.

B Commence warfarin and cease aspirin when INR reaches therapeutic range.
Aspirin would be more effective than warfarin in treatment of ischemic heart disease and so should be continued.

C Add clopidogrel to the aspirin, this is much safer than adding warfarin.
The combination of clopidogrel and aspirin is not as effective as full anticoagulation for the prevention of stroke in patients with AF.

D Commence warfarin and continue aspirin.
This is the most appropriate recommendation. The combination of aspirin (for his IHD) and warfarin (for AF) would reduce his stroke risk optimally.

E Substitute clopidogrel for the aspirin and this should be sufficient.
Clopidogrel is unlikely to be more effective than aspirin in stroke prevention in AF, and is less effective than warfarin.

1 Back to Case to find more problems

2 No finish the case here

End

You have now completed the case study.

The patient were three **major** drug related problems to address.

1. He has oedema which may be induced by rosiglitazone. This may be alleviated by changing to an alternative oral antidiabetic agent , preferably metformin.
2. He has hypertension that requires additional management, preferably by the addition of an ACE Inhibitor.
3. He has atrial fibrillation and based on his risk factors for stroke, he should be receiving warfarin for AF in addition to aspirin for IHD.

- Other issues in this case may be pursued, but your score for the case is based on the identification of these three problems and the recommendations you made to address them.

Your Score for this case is: .....%

9.10 Appendix 10: PROMISe Study Pharmacist Demographics Questionnaire

Demographic for on-line validation

Section 1 About you and your background

The following information is important to enable us to determine how your background influences the way the intervention scenarios are classified.

Gender

Male
Female

Age (years)

<20
20-25
26-30
31-40
41-50
51-60
over 60

Your Education Background

Year of Graduation

Please enter the year you completed your undergraduate pharmacy degree.

_____
Not yet graduated (link to section Undergraduate

Pre-registration Training

Where did you undertake you pre-registration training

- ❑ Community pharmacy
- ❑ Hospital pharmacy
- ❑ A combination of Community and Hospital pharmacy
- ❑ Other (please specify)_____

Have you since gained any further clinical qualifications

- ❑ Yes (please specify) _____
- ❑ No

Are you accredited to conduct medication reviews

- ❑ Yes
- ❑ No

Practice Profile

Please enter the number of full-time years in each different practice setting

Practice setting	<2 years	2-5 years	>5 years	Nil
Community pharmacy				
Hospital pharmacy				
Medication reviews				
Other (please specify)_____				

Have you worked in pharmacy outside Australia?

- ❑ No
- ❑ Yes

If so where _____

Continuing Education

How many hours of CE/CPD would you complete, on average, each year

- ❑ <10 hours
- ❑ 10-25 hours
- ❑ 25-50 hours
- ❑ >50 hours
- ❑ Don't know
- ❑ None

Section 2. About Your Main Area of Work

The following questions relate to the practice setting where you spend the majority of your time practicing as a pharmacist.

1 Main Area of Current Practice

Please indicate the ONE area of practice where you spend the **majority** of your time practicing as a pharmacist.

- □ Community pharmacy (link For community pharmacists
- □ Hospital pharmacy (link For hospital pharmacists
- □ GP division liaison pharmacist (link Other
- □ Medication Reviews (link Other
- □ University or other tertiary educational institution (link Other
- □ Other (please specify) _____ (link Other

NOTE: this is where questionnaire divides between hosp/community

For community pharmacists

1 What is your current role in community pharmacy

- ❑ Owner
- ❑ Employee
- ❑ Locum
- ❑ Other _____

2 How long have you worked in your current position

_____ years

3 When you work in this area, what proportion of the time do you do so

- ❑ Full-time
- ❑ Part-time
- ❑ Other _____

4 What is the post code of the main area where you work

5 When you are at work, how many other pharmacists also are present at your practice at the same time?

- ❑ None, I am the sole pharmacist
- ❑ One other pharmacist
- ❑ 2-4 other pharmacists
- ❑ 5 or more other pharmacists

6 How many hours do you work at this practice on average per week?

<10 hours
10 to 20 hours
20 to 40 hours
over 40 hours

7 Of this time what proportion is spent on administrative tasks

- ❑ <10%
- ❑ 10-50%
- ❑ 51- 75 %
- ❑ >75%

8 On average, approximately how many prescriptions would you dispense or check per hour at work?

1-9 prescriptions per hour
10-15
16-20
21-30
31-45

Over 45
Not appropriate to my area of practice

For hospital pharmacists

1 What proportion of your time relates to clinical activities
- ❑ <25%
- ❑ 25-50%
- ❑ 50-75%
- ❑ >75%

2 How long have you worked in your current position
_____ years

3 When you work in this area, are you working
- ❑ Full-time
- ❑ Part-time
- ❑ Other

4 What proportion of clinical interventions would you currently document

- ❑ <25%
- ❑ 25-50%
- ❑ 50-75%
- ❑ >75%

5 When you are at work, how many other pharmacists also are present at your practice at the same time?

- ❑ None, I am the sole pharmacist
- ❑ One other pharmacist
- ❑ 2-4 other pharmacists
- ❑ 5 or more other pharmacists

Other

1 Do you also spend time in any other area of pharmacy practice
- ❑ Yes
- ❑ No *(go to opinion section)*

On average how many hours per week would you spend in this second area of practice
- ❑ <10 hours
- ❑ 10 to 20 hours
- ❑ 20 to 40 hours
- ❑ over 40 hours

Is this time spent in

- ❑ Community pharmacy For community pharmacists
- ❑ Hospital pharmacy For hospital pharmacists
- ❑ Other _____

Undergraduate

Which year of pharmacy will you be completing in 2005

- ❑ 1st year
- ❑ 2nd year
- ❑ 3rd year
- ❑ 4th year
- ❑ Other (please specify) _____

What area of pharmacy practice do you see yourself working in, in five years time

- ❑ Community pharmacy
- ❑ Hospital pharmacy
- ❑ Research
- ❑ Other (please specify) _____
- ❑ Not working in pharmacy

Thankyou for taking your time to complete this survey

9.11 Appendix 11: PROMISe Study Validation Sample Scenarios

Scenario 1
A regular patient comes in with repeat for metformin 500mg 1g three times a day. You notice from the dispensing history that it has been 7 weeks since he last had this script filled. Your discussion with the patient reveals that he has been taking tablets only when sugar is high. You explain to him the disease process of diabetes and provide information on metformin. You recommend he start taking the dose prescribed by the doctor and go and see the doctor soon to have his HbA1C measured.
Categorisation
Compliance - taking too little This gentleman has been prescribed the correct drug at the correct dose, but has chosen to not take the medication as prescribed. This may be because he is confused about the need for regular intake of this type of medication, because he is forgetful, or he has simply chosen to take tablets as infrequently as possible. The correct categorisation of this intervention based on the information supplied, as most people have indicated would be 'Compliance – taking too little'
The actions recorded for this intervention should include
Investigation - patient history
Discussion with patient or carer
The recommendations made by the pharmacist
Education/ counselling session
Referral to prescriber
Monitoring - Laboratory test
Significance
Moderate The perceived level of significance of this intervention has varied greatly, ranging from low to high, and a case could be argued for each. It is perhaps not unusual for a person to skip tablets, but the likelihood of this action causing hospitalisation in the near future is low. It is more likely to require a visit to the prescriber and therefore should be documented as of moderate significance.
Who detected the problem
The problem was detected through pharmacist intervention. The pharmacist identified that the patient was taking sub-optimal doses due to compliance issues. In this situation the long term benefits of the intervention would be significant and could include cost saving to the patient and the broader health system by avoiding the complications of diabetes.
Scenario 2
A 55 year old man with diabetes and ischaemic heart disease presents a new

prescription for sildenafil (Viagra) 50 mg. His other medications include isosorbide mononitrate, metformin, glipizide, amiodarone, aspirin, perindopril and metoprolol. You are aware that sildenafil should not be used with nitrates You contact his doctor and discuss the situation and suggest that the Viagra is ceased and an alternative commenced
Categorisation of the situation
Drug selection - interaction with existing therapy In this scenario, a prescription has been presented for a drug that potentially could interact with the gentleman's existing therapy, and should be classified as 'Drug selection – interaction with existing therapy', as many people have done. By definition, this is not an adverse drug reaction as he has not taken the interacting drug and is therefore not displaying any adverse effects or symptoms. Categorising this situation as 'Drug selection – other' would be satisfactory if the details of the problem were specified in the notes section.
The actions recorded for this intervention should include
Contacted prescriber
The recommendations made by the pharmacist
Prescription not dispensed
Refer to prescriber
A change in drug
Significance
High This combination of drugs is contraindicated and can lead to very serious consequences if they are taken together. For this reason, it is reasonable to indicate that this intervention is of high significance.
Who detected the problem
In this situation the pharmacist identified the potential drug interaction with the patient's current therapy. The avoidance of the drug interaction provided significant benefits to the patient.
Scenario 3
A prescription for a 12 year old boy for amoxycillin 250mg/5mL, 4mL three times a day for acute otitis media. You check the dose in the product information and find that it is meant to be 500mg three times a day. You discuss the situation with the boy's mother and contact the prescriber, you suggest that the dose is increased.
Categorisation of the situation
Over/underdose - dose too low Most people have categorised this intervention correctly as 'Over- or under-dose prescribed – dose too low'

The actions recorded for this intervention should include
Investigate written material
Contact prescriber
Discussion with patient or carer
The recommendations made by the pharmacist
Dose change
Significance
Moderate If this antibiotic was taken at the prescribed dose it is likely that the infection would not resolve, and a repeat visit to the general practitioner would be required. For this reason, it is best to indicate this intervention is of moderate significance.
Who detected the problem
The underdose of the antibiotic was detected by the pharmacist, the relevant patient factors were assessed by the pharmacist and a more appropriate dose of antibiotic was recommended. This pharmacist initiated intervention had the potential to prevent a further visit to the GP
Scenario 4
A 56 year old man comes into your pharmacy complaining of drowsiness. He tells you he commenced mirtazapine one week ago and is currently taking 30mg each night. His other medications include diazepam 10mg tds and temazepam 20mg at night. You discuss the situation with the patient and counsel the patient on the new medication and how it combines with his current medication. You recommend that he goes back to the doctor who may adjust the dose
Categorisation of the situation
Toxicity or Adverse reaction - cause by drug interaction This scenario is similar to scenario 2 in that there are potentially 2 interacting drugs, but in this case the two drugs have been taken and have caused an adverse effect or symptom. Therefore the most appropriate categorisation is 'Toxicity or Adverse reaction – caused by drug interaction'. We are unsure if the patient was instructed to start at a half dose of mirtazapine to minimise side effects such as drowsiness, or exactly how much of each benzodiazepine he is taking. It is not appropriate to document this intervention as 'Drug selection – duplication' as the drugs are not of the same therapeutic class.
The actions recorded for this intervention should include
Discussion with patient or carer
The recommendations made by the pharmacist
Refer to prescriber
Change in dose

Significance
Moderate
The significance of this intervention is probably not high; it is unlikely that the patient would need to be hospitalised due to the excessive drowsiness. Moderate would be the most appropriate level of clinical significance.
Who detected the problem
The patient comes into the pharmacy complaining of drowsiness, although they are unaware of the cause of the problem they clearly communicated that there was a current problem. The role of the pharmacist in this intervention was to identify the probable cause and advise appropriate actions. The pharmacist was able to help resolve the problem but they were less involved in the initial detection of the problem.
Scenario 5
A 65year old woman presents a prescription for prednisolone 5mg daily for management of polymyalgia rheumatica. She is frail and appears to weigh approximately 45kg. Although she tells you that she is taking calcium supplements, you believe she is still at risk of osteoporosis. You consult their dispensing history to estimate how long she has been taking prednisolone. You discuss your concerns about osteoporosis with the patient. You recommend that she goes to see her doctor for further the assessment of osteoporosis risk, including bone density scanning, and the potential for commencing additional preventative therapy.
Categorisation of the situation
Untreated indication - condition not adequately treated
This scenario has drawn a large variation in responses, but the most appropriate categorisation would be 'Untreated indication – condition not adequately treated'. The majority of respondents categorised the intervention correctly as an 'Untreated indication', but only 15% as a 'condition not adequately treated'. It could be argued that this intervention does fit into either category quite satisfactorily, and this is confirmed by referral to the scope notes. Some people suggested that monitoring is required, for example a bone densitometry test, but this is probably a recommendation as opposed to the category of intervention. It could also be argued that the lady only requires disease management advice regarding her diet and lifestyle activities.
The actions recorded for this intervention should include
Investigation; patient history
Discussion with patient or carer
The recommendations made by the pharmacist
Refer to prescriber
A change in drug = additional preventative medicine
Monitoring; laboratory test

Significance
Mild
The significance of this intervention is probably 'mild – improvement in therapy or quality of life'. If left unchecked, the situation may lead to a hospitalisation post fracture, but not likely in the near future.
Who detected the problem
Identifying areas where preventative medicine should be included is an area where pharmacists can intervene in a patient's therapy. Clinical judgement and skills are used to interpret the situation and in this case the multiple risk factors and make appropriate recommendations, such as testing and preventative therapy.
Scenario 6
An elderly male patient presents repeat scripts for diamicron and amaryl. His dispensing history shows patient has had diamicron for over 12months, but has only received amaryl in previous month. You are aware that amaryl and diamicron are both sulphonylureas. After talking with the patient you find he has been taking both the diamicron and amaryl for a month. You contact his doctor to determine if he intended the patient to take both medications. Your recommendation is to cease diamicron.
Categorisation of the situation
Drug selection - dupliaction
This scenario is clearly a 'Drug selection – duplication' intervention, as approximately 70% of responders have indicated. The patient has not reported any adverse effects from taking the combination, so this rules out the possibility of it being a toxicity problem. It could be a problem of patient confusion or misunderstanding of the doctor's directions, if the prescriber had advised the patient to cease the diamicron.
The actions recorded for this intervention should include
Investigation; patient history
Discussion with patient or carer
Contacted prescriber
The recommendations made by the pharmacist
A change in drug = cessation of one sulfonylurea
Significance
Moderate
The significance of this intervention is probably moderate as a consultation with the prescriber for monitoring of the BSL/HbA1C is advisable. Many people indicated that this is of high significance and were probably concerned that the patient would develop severe hypoglycaemia requiring hospitalisation. The fact that he had already been taking the therapy for 1 month and has not reported any adverse effects, suggests that it probably is not of high

significance.
Who detected the problem
The patient presents repeat prescription to the pharmacist who interprets the information and determines that the request from the patient, to have both prescriptions filled, may not be appropriate. It is the pharmacist who detects that there is a problem and deals with the situation appropriately.
Scenario 7
A 61 year old, overweight, man has had Type 2 Diabetes Mellitus (NIDDM) for 10 years and ischaemic heart disease (angina). He has been prescribed glipizide each morning and metformin three times a day. He admits that he misses his medication sometimes (approximately 3-6 doses per week) because he simply forgets. You discuss the situation with the patient. As he often forgets to take his medication but seems to have a good understanding of why he should be taking the metformin and glipizide. You recommend that he start using a dosage administration aid in which a weeks worth of tablets can be arranged and act as a reminder to take those tablets. Also you remind the patient of the regular checks that a diabetic needs to have completed including blood tests.
Categorisation of the situation
Compliance -taking too little
This is clearly a compliance problem and 'taking too little' the most appropriate selection. The scope notes clearly explain that 'difficulty using dosage form' is to apply to a physical problem with using a particular device, and does not relate to forgetfulness. There is no indication that his prescribed medications are inappropriate, unless you feel that tds dosing for an older gentleman was complicating the issue. Monitoring (HbA1C) may be required to establish the extent of this gentleman's non-compliance (an 'action' or 'recommendation') but this is not the cause of the problem, as a few people indicated.
The actions recorded for this intervention should include
Discussion with patient or carer
The recommendations made by the pharmacist
Commence dose administration aid
Monitoring laboratory
Significance
Mild
The significance of this intervention is most likely mild. Explaining the importance of taking his medications regularly and providing a dose administration aid will improve this gentleman's therapy.
Who detected the problem
The problem was detected by the pharmacist during counselling of the

patient. His forgetfulness may impact on other areas as well as his compliance but the pharmacists actions may assist the patient take his medications regularly and hence receive the full benefits of them.
Scenario 8
An 84 year old woman asks you why she has had oral thrush, you know that she is a chronic asthmatic using inhaled corticosteroids. You check her inhaler technique and notice that she does not inhale properly. You suggest she start using a large volume spacer device. You also give her a demonstration on how to use the device appropriately.
Categorisation of the situation
Education or information - demonstration of device
In this scenario essential she requires a demonstration of her inhaler device to improve her technique, (Education or Information – demonstration of device) The majority of responders have indicated the appropriate categories, but around 15% indicated that this problem was a compliance problem as the person was having difficulty using the dosage form. Referral to the scope notes quite clearly instructs that this category is to be used when the person has a physical problem with the device eg arthritis limiting the use of the inhaler, not just using the device inappropriately.
The actions recorded for this intervention should include
Discussion with patient or carer
The recommendations made by the pharmacist
Education/ counselling session
Commence dose administration aid
Significance
Mild
The significance of this intervention could be regarded as mild or moderate, as most people have indicated. If left unchecked, the patient may have required a visit to her GP, but at the very least the treatment of her asthma has been improved.
Who detected the problem
The patient requests further information on oral thrush and the reasons why they have had it. The pharmacist was able to determine one of the causes of the problem; poor inhaler technique and recommend appropriate cause of action. The initial presentation was initiated by the patient and therefore it was a reactive behaviour on the part of the pharmacist.
Scenario I
An 82 year old lady presents with script for ventolin inhaler one to two puffs four times a day when required. During counselling, you discover that her rheumatoid arthritis is preventing her from actuating the inhaler. After discussing the situation with the patient you decide to contact the prescriber

and suggest that this lady may be able to more effectively use a different type of device to control her symptoms, for example an autohaler.
Categorisation of the situation
Compliance - difficulty using dosage form
Quite clearly, this intervention should be categorised as 'Compliance – difficulty using dosage form' as most people have indicated. It could be argued that the doctor could have prescribed a different device that would have been easier for her to use (Drug selection – incorrect or inappropriate dosage form) as the inhaler device is clearly inappropriate for this person. A demonstration of the device is still not going to enable her to use it satisfactorily, so 'Education or Information' is not going to assist the patient to become more compliant.
The actions recorded for this intervention should include
Discussion with patient or carer
Contacted prescriber
The recommendations made by the pharmacist
Drug formulation change
Education / counselling session
Significance
Moderate
The significance of this intervention is mild to moderate. It is difficult to be more specific than this without additional knowledge of the patients other therapy, or knowledge of the severity of her asthma.
Who detected the problem
It was through counselling and discussion with the patient that the pharmacist was able to determine that there was a problem with their current therapy. The pharmacist was active in determining whether the patients current therapy was relevant and effective. In different circumstances the patient may have detected the problem for example if their asthma symptoms were worsening or they asked the pharmacist to demonstrate inhaler technique
Scenario 9
An 87 year old woman has been taking digoxin 125 micrograms daily for her atrial fibrillation for 3 years. Recently you have noticed that she is getting increasingly frail and may have lost weight. She presents a repeat prescription for digoxin. While you prepare the prescription she tells you that she has been having visual disturbance and wonders if she needs her glasses replaced. You recognise the possible side effect of the digoxin you consult the relevant software to confirm this. You discuss the situation with the patient and contact her prescriber. You believe that it would be best if the patient were examined by her doctor. In addition to this referral you believe that the patient should have laboratory tests to determine renal function and reduce

digoxin dose
Categorisation of the situation
Toxicity or Adverse reaction - dose related
In this scenario, the patient has noticed an adverse effect that can be attributed to her current medication therapy, although has not made the link between her visual disturbance and current medications. In assigning an intervention category, most people have indicated that the visual disturbance is a sign of 'Toxicity or adverse effect'. It could also be quite reasonably be categorised as 'Over- or under-dose prescribed – dose too high' as reference to the scope notes quite clearly explains that this category is to be used "…where the dose is too high because of a particular parameter of the patient such as renal function.", although the dose has been fine up until now. Some people have indicated that monitoring is required, and although this is true, this is a recommendation and not the cause of the pharmacist performing the intervention.
The actions recorded for this intervention should include
Investigation; software
Discussion with patient or carer
Contacted prescriber
The recommendations made by the pharmacist
Refer to prescriber
Dose change
Monitoring; laboratory
Significance
High
The significance of this intervention is moderate to high. The patient felt that the visual disturbance was due to her glasses and may not have done anything about it, and therefore may have been admitted to hospital. If she takes your advice, she will return to the doctor for perhaps digoxin levels, renal function tests and adjustment of her dose which makes this an intervention of moderate significance by definition.
Who detected the problem
In this situation it is the pharmacist who is able to identify the problem. Interpretation of the information presented indicated that the patient required assessment by their doctor to establish digoxin levels and renal function.
Scenario 10
A 45 year old man who is a regular patient of your pharmacy arrives for a repeat prescription of metoprolol for his hypertension. He has a history of asthma and tells you he has been using salbutamol inhaler 3 times daily in the last couple of weeks. He also uses a fluticasone inhaler, 250mcg twice a day, and presents a new prescription for salmeterol. It seems that he is suffering from an increase in his asthma symptoms and this could be due to the

metoprolol. You contact his prescriber with your concerns as an alternative to the metoprolol you suggest a more suitable antihypertensive.
Categorisation of the situation
Toxicity or adverse reaction - caused by drug interaction
This gentleman is displaying a symptom or adverse effect and therefore this intervention should be documented as 'Toxicity or adverse reaction – caused by drug interaction'. It could also be documented as 'Toxicity or adverse effect – other' as long as the details are specified in the notes section. Almost half of the responders indicated that this was a 'Drug selection' intervention. It could be argued that metoprolol is an inappropriate drug in an asthmatic and therefore should not have been prescribed, but reference to the scope notes indicates that these categories should be selected only "When there are no obvious adverse clinical effects…" and there appears to be an adverse effect in this case. In fact, the patient has just seen his GP who has prescribed an additional asthma management medication, which indicates loss of asthma control.
The actions recorded for this intervention should include
Discussion with patient or carer
Contact prescriber
The recommendations made by the pharmacist
A change in drug
Significance
Moderate
The significance of this intervention is moderate, as it will probably require a return visit to the GP. It is unlikely to require a hospital visit as he has been taking the metoprolol for at least a month, and has only been using the salbutamol three times a day. The deterioration of his asthma appears to be a slow process.
Who detected the problem
It seems that the patients asthma has worsened recently the pharmacist was able to identify that metoprolol may be a contributing factor to this. In this situation through counselling of the patient his increased frequency in reliever medication was detected. In combination with the new prescriptions it was proposed by the pharmacist to review the patients current antihypertensive medication.
Scenario 11
A 54 year old woman arrives at your pharmacy to collect her monthly omeprazole 20mg daily prescription. She mentions in the course of counselling that she takes it daily after breakfast, for convenience but she still has some reflux problems in the evening. You discuss her current problems and ways to reduce the incidence of reflux as appropriate, eg losing weight, eating smaller meals You encourage her to try taking the omeprazole later in

the day to see if this resolves her current problems. You also advise her that if the trial is unsuccessful she should return to her doctor to discuss her therapy.
Categorisation of the situation
Untreated indication - condition not adequately treated
This scenario received a wide range of categories allocated to it. The correct category is 'Untreated indication – condition not adequately treated', as 31 respondents indicated. This is the reason the intervention was brought to the pharmacist's attention. The other suggested categories are more likely actions or recommendations that could be made to resolve the problem, for example changing the frequency of dosing to bd or the total dose taken at night.
The actions recorded for this intervention should include
Discussion with patient or carer
The recommendations made by the pharmacist
Refer to prescriber
Dose frequency/schedule change
Education/ counselling session
Significance .
Mild
The significance of this intervention is mild as the implementation of the pharmacists suggestions will improve the patient's therapy and/or quality of life and should not require a return visit to the GP to achieve
Who detected the problem
This intervention relates to inadequate treatment of the ladies current condition. The pharmacist is the person who has determined that their condition is not adequately treated. Although the patient was able to identify the worsening of symptoms the most significant problem was that their conditions remains under-treated.
Scenario 12
A 76 year old male patient presents repeat prescriptions for imdur, warfarin, clopidogrel, atenolol, ramipril, digoxin and frusemide. He mentions he doesn't need his amiodarone any more as the doctor has just ceased it. You are aware of the interaction between amiodarone and warfarin and on questioning; you discover that he has not been asked to have follow-up INR testing. You phone his doctor to discuss the situation and recommend that INR testing be scheduled. During your explanation to the patient you also provide him with a medication profile which reflects the recent changes to his therapy.
Categorisation of the situation
Monitoring required - laboratory monitoring

It can be assumed that the patients INR had been stabilised while he was taking amiodarone, and it will therefore need to be readjusted now his amiodarone is to be ceased. INR monitoring will be required over this period to restabilise his warfarin therapy at an appropriate dose, therefore 'Monitoring required – Laboratory monitoring' is the correct category. Drug levels of warfarin are not performed, the effect of the drug in the form of an INR test is carried out; hence 'drug levels' is not a suitable category. Ceasing one of these drugs is not going to lead to a drug interaction, and therefore "Drug selection – interaction' is not a suitable category in this instance. The amiodarone has just been ceased and no time has elapsed to allow the appearance of any adverse effect, therefore this intervention does not fit under the 'Toxicity' banner. Hopefully the adverse effects will be avoided by prompt and appropriate monitoring.
The actions recorded for this intervention should include
Contacted prescriber
Discussion with patient or carer
The recommendations made by the pharmacist
Monitoring; laboratory test
Written summary of medications
Significance
Moderate
The significance of this intervention is moderate to high. The patient is going to have to return to his GP for INR monitoring, and if the monitoring does not take place he may have a thromboembolic event which would lead to hospitalisation.
Who detected the problem
The pharmacist's ability to detect this problem relates to their knowledge of the drug interaction between amiodarone and warfarin. The monitoring recommended is essential to prevent a thromboembolic event
Scenario 13
A 56 year old woman with hypertension comes in to ask you about the change in her diuretic tablets (Hydrene). She brings in the bottle that was dispensed elsewhere and you note that the medication is hydroxyurea (Hydrea). The medication is labelled as Hydrea 2 m and you find that she has been taking these for seven days. You contact her prescriber to make them aware of the situation and arrange a blood test for the patient. You provide the patient with the correct medications.
Categorisation of the situation
Drug selection - wrong drug
Most people correctly indicated that this intervention should be categorised as 'Drug selection – wrong drug prescribed/supplied in error'. It is likely the

patient will develop symptoms if this therapy is continued, but there is no evidence that she has yet, therefore 'toxicity' is not an appropriate category. The category of 'Non-clinical' should be used for administrative type errors related to the script.
The actions recorded for this intervention should include
Discussion with patient
Contacted prescriber
The recommendations made by the pharmacist
Drug change - correct medication supplied to patient
Monitoring ; laboratory
Refer to prescriber
Significance
High
The significance of this intervention is high. The patient has been inappropriately supplied with a cytotoxic agent instead of a diuretic.
Who detected the problem
The patient has detected the problem albeit after taking 7 days of the medication. The pharmacist reacts appropriately to the patient presenting the dispensing error. In this situation it is not due to the actions of the pharmacist that this problem was detected.
Scenario 14
The husband of a 76 year old woman brings in a script for amiodarone 200mg daily. You find that the script was last dispensed 2 weeks ago and question the early repeat. You find that the lady has been taking both Aratac and Cordarone for the last 2 weeks, thinking they are different drugs. You contact the prescriber to inform them of the situation, and you provide the patient's carer, her husband, with information about the generic medicine name of amiodarone
Categorisation of the situation
Drug selection - duplication
Some people indicated that this intervention should be documented as 'Compliance – taking too much'. Review of the scope notes for this category clearly states that "If the overuse consists of inappropriately taking two brands or forms of the same ingredient unknowingly, then use "Drug selection – duplication". The duplication may have stemmed from the patients confusion or misunderstanding and this will need to be rectified. Monitoring for adverse effects may be required and this should be recommended, but at this stage no adverse effects have been reported. This eliminates the 'Monitoring' and 'Toxicity' categories in this scenario. Categorising this intervention as 'Over- or under-dose prescribed' is incorrect as the dose *prescribed* was correct.

The actions recorded for this intervention should include
Discussion with patient or carer
Contacted prescriber
The recommendations made by the pharmacist
A change in brand
Other written information
Significance
High
When all parameters (patient age, 2 bradycardic agents, and long half-life) are taken into account, the significance of this intervention is high.
Who detected the problem
Through determining why the repeat was required after only 2 weeks the pharmacist was able to detect a problem with the patients comprehension of their current therapy - the duplication of two different brands of the same medication
Scenario 15
A 45 year old patient with chronic back pain was previously stabilised on tramadol 50mg qid. He brings in a new prescription for Tramal 200mg SR qid and tells you the doctor increased the dose as a result of his increasing pain. You contact the prescriber and recommend the dose be reduced to 200mg twice a day.
Categorisation of the situation
Over/under dose -dose to high
Increasing the dose of tramadol in this patient is an appropriate course of action, but the size of the increase and/or the dosage frequency is too much. There were many different categories selected, but 'Over- or under-dose prescribed – dose too high' is the most suitable. The higher dose has not been taken yet, so no adverse effect can be noted, and the problem is not one of compliance. It is not an untreated indication as the doctor has already addressed the inadequate treatment.
The actions recorded for this intervention should include
Contacted prescriber
Discussion with patient or carer
The recommendations made by the pharmacist
Dose change
Significance
Moderate
The significance of this problem is at least moderate, and may be high depending on other medications and circumstances. The majority of

responders have indicated moderate or high.
Who detected the problem
The pharmacist determines that the dose prescribed was too high and takes the necessary steps to resolve this issue.
Scenario 16
A 35 year old woman had been commenced amoxicillin 500mg tds 3 days previously for prophylaxis of infection after a dental extraction. She presents to the pharmacy to enquire about her swollen, increasingly painful jaw. You refer her back to the prescriber as it appears the infection has not been controlled, you believe a change in antibiotic regimen is required.
Categorisation of the situation
Untreated indication - condition not adequately treated
As most responders indicated, this scenario should be categorised as 'Untreated indications – condition not adequately treated' She is receiving prophylactic antibiotics post dental extraction, but it appears to have not worked. Some people indicated that this was a 'Toxicity problem, but the presenting complaint is not an adverse effect of the medication, it is an apparent failure of the medication. It perhaps could be categorised as a 'Drug selection - other' problem, as long as it is accompanied by explanatory notes, as it appears that this may not have been the most suitable drug in this instance. Referral to the scope notes makes it clear that this is not a 'wrong drug' scenario.
The actions recorded for this intervention should include
Discussion with patient or carer
The recommendations made by the pharmacist
A change in drug
Refer to prescriber
Significance
Moderate
The significance of this intervention has been correctly listed as moderate by most responders, as the patient will require a return visit to the prescriber for additional treatment to rectify the problem.
Who detected the problem
The patient presents with a problem that the pharmacist then takes steps to resolve. It is the patient who initially identifies there is a problem.
Scenario 17
A 76 year old man with hypothyroidism presents with an order for thyroxine 50mcg three daily and thyroxine 100mcg three daily. On checking previous patient records and discussion with patient, you find that he is meant to be taking 150mcg daily. You contact the doctor to confirm the dose and correct

the prescription as appropriate.
Categorisation of the situation
Over/under dose - dose to high
There is no indication in this scenario that the patient has taken any of the prescribed medication at this dose, therefore this is not a compliance problem. It is not unusual for a patient to be prescribed two different strengths of thyroxine to achieve the required dose; therefore this is not a duplication problem. The patient himself has not displayed any confusion about his therapy to this point, apart from presenting a 'script which might not be correct, so 'Education or Information' would not be the correct category in this case. Clearly the dose prescribed is too high based on previous therapy, and referral to the scope notes makes it clear that 'Over- or under-dose prescribed – dose too high' is the most appropriate categorisation in this scenario, as 80.2% of responders indicated.
The actions recorded for this intervention should include
Investigation; patient history
Contacted prescriber
The recommendations made by the pharmacist
A change in dose
Significance
Moderate
The significance of this intervention would be moderate to high, considering the age of the patient and the size of the overdose.
Who detected the problem
The pharmacist was able to detect the problem with this prescription based on the information available to them.
Scenario 18
A 76 year old woman present with a new prescription for mirtazapine. She is currently receiving sertraline 100mg daily. She was unclear about the doctor's instructions regarding the sertraline, and was going to continue taking both antidepressants. You contact the prescriber to confirm their intentions, and advise the patient of the outcome. You discuss with the doctor that this patient may be suitable for an HMR.
Categorisation of the situation
Drug selection - duplication
This scenario received a wide range of categorisation, but referral to the scope notes clarifies the most appropriate section, albeit in a long winded way. The largest number of people selected 'Education or Information – confusion about therapy or condition' as the most suitable category, but referral to the scope notes directs that "If the confusion would have (or did) resulted in a change in compliance (either taking too much or too little of the

medication), then an appropriate 'Compliance' code should be selected". Referral to the 'Compliance – other' scope notes directs "If the compliance issue results in two drugs of the same therapeutic class being taken inadvertently, then use 'Duplication'". 'Drug selection – duplication' is therefore the most appropriate category for this scenario. 'Drug selection – drug interaction' can appear to be correct at first glance, but the scope notes clearly indicate "If the interacting drug is of the same therapeutic class as part of the patient's existing therapy, then use "Duplication"'. The patient has not taken the two drugs together therefore there are no adverse effects at this point, so 'Toxicity' is not a suitable category. The doses prescribed are within recommended dose ranges therefore the dose prescribed of each individual drug is not too high.
The actions recorded for this intervention should include
Discussion with patient or carer
Contacted prescriber
The recommendations made by the pharmacist
Education/counselling session
Refer for medication review
Drug change - the relevant medication should be ceased
Significance
Moderate
Most people indicated that the significance of this intervention was moderate which is most likely correct. If undetected, this problem was unlikely to result in a hospital admission, but may well have required a GP consultation
Who detected the problem
Without counselling of the patient the problem may not have been evident until the patient developed a symptom from whichever action they would have taken; cease both or take both antidepressants. The pharmacist was able to detect the patient problem.
Scenario 19
A 76 year old woman presents in January with a prescription for prednisolone that is dated January the previous year. You check with the doctor who tells you he wrote the wrong year on the script.
Categorisation of the situation
Nil - administrative only
Most people agreed that this scenario was basically an administrative error on behalf of the doctor, and correctly classified this intervention as 'Non-clinical'.
The significance of this intervention is 'Nil – administrative only'
The actions recorded for this intervention should include
Contacted prescriber

The recommendations made by the pharmacist
No recommendation necessary
Who detected the problem
Most non-clinical interventions result in the pharmacist resolving some form of administrative task. In most cases the problem is self evident and easily fixed.

9.12 Appendix 12: PROMISe Study Post Study Questionnaire

UTAS FACULTY OF HEALTH SCIENCE School of Pharmacy

PROMISe Project Pilot Study

Post Study Questionnaire

Section 1. Demographics

Name: _____

Pharmacy: _____

1.1 Employment status:

- ❑ Pharmacist
  - ❑ Full-time
  - ❑ Owner
  - ❑ Part Time/ Locum/Casual
- ❑ Graduate Pharmacist

1.2 Did you attend the education session relating to this project, hosted by the University of Tasmania?

❑ Yes ❑ No

1.3 Did you view the training presentation on the CD provided in the manual for this project?

❑ Yes ❑ No

1.4 Did you undertake the validation case scenarios on the project website?

❑ Yes ❑ No

Section 2. Documentation of Clinical Services

2.1 Did you document your clinical services prior to this project?

❑ Yes ❑ No ❑ Sometimes

If Yes, where did you document these activities?

- ❑ Scraps of paper
- ❑ Dedicated book
- ❑ Patient file
- ❑ On computer, i.e *Notes section or* previous intervention recording software
- ❑ Other (*please specify*)_____

2.2 When you first heard about this project, what barriers did you perceive would prevent you from recording your clinical services? *You may select more than one option*

- ❑ lack of motivation
- ❑ workflow restrictions
- ❑ lack of clinical knowledge
- ❑ forgetfulness
- ❑ lack of time
- ❑ concerns about how the software would work
- ❑ none
- ❑ Other (*please specify*) _____

2.3 During the PROMISe Pilot Study, approximately what percentage of clinical services that you performed, do you believe that you documented?

- ❑ 100%
- ❑ 75%
- ❑ 50%
- ❑ 25%
- ❑ 10% or less

2.4 What barriers did you find in recording your clinical services?

You may select more than one

- ❑ lack of motivation
- ❑ workflow restrictions
- ❑ lack of clinical knowledge
- ❑ forgetfulness
- ❑ lack of time
- ❑ The software was difficult to use
- ❑ none
- ❑ Other (*please specify*) _____

2.5 During the PROMISe Pilot Study, what factors influenced which of your clinical services you documented? *You may select more than one option*

- ❑ higher perceived importance
- ❑ availability of time
- ❑ presence of observer
- ❑ Other (*please specify*) _____

Section 3. Time spent on Clinical Services

3.1 During the PROMISe Pilot Study, what proportion of your time at work was spent involved in clinical services (either documenting or sorting out actual or potential drug related problems)?

- ❑ Less than 5%
- ❑ 5 to 20%
- ❑ 20 to 50%
- ❑ More than 50%

3.2 During the PROMISe Pilot Study, how long (on average) do you think it took you to perform a single clinical service (including the documentation process)

- ❑ Less than 1 minute
- ❑ 2 to 5 minutes
- ❑ 6 to 10 minutes
- ❑ 11 to 30 minutes
- ❑ More than 30 minutes

3.3 During the PROMISe trial do you think you spent more time on clinical services than outside the trial

- ❑ Yes
- ❑ No

3.4 Do you think being involved in the PROMISe trial increased the number of clinical services/ interventions you performed

- ❑ Yes
- ❑ No

Section 4. Payment for Clinical Services

4.1 Do you believe clinical services should be remunerated?

❑ Yes ❑ No

4.2 If payment for clinical services was implemented, rate each of the payment options below according to how much you would agree with that option. Also, please write an amount you think would be appropriate for each option

4.2.1 A payment to each ***pharmacy*** for each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.2 A payment to each ***pharmacist*** for each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.3 A payment to each ***pharmacy*** based on the total time spent on each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.4 A payment to each ***pharmacist*** based on the total time spent on each clinical service documented.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.5 A set, across the board, payment for each *pharmacy* for documenting the services, unrelated to number or duration of services.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.6 An increase in the overall dispensing fee for all prescriptions to compensate for these "add on" services.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.7 An increase in the dispensing fee for original (non-repeat) prescriptions, as they are more likely to require the "add on" services.

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.8 An increase in the dispensing fee for prescriptions for drugs with a high frequency of clinical services (eg warfarin).

Appropriateness of payment model	Amount
Strongly agree ——— Strongly disagree	

4.2.7 Any other payment system that you would propose (please specify)?

Section 5. Your general opinions relating to clinical services

Place a cross ***anywhere*** on the line or tick the box to indicate your opinion on the following statements;

5.1 Documenting of cognitive services helps to demonstrate the ability of pharmacists to improve medication therapy.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.2 Documenting of cognitive services helps to demonstrate the ability of pharmacists to reduce health care costs.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.3 Participating in this project made me more aware of / focussed upon identifying Drug Related Problems.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.4 I believe that I would require an update in clinical knowledge in order to optimise my ability to identify Drug Related Problems.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.5 The cognitive service recording program was easy to use.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.6 The sequence for documenting a cognitive service, including accessibility to the interventions screen, was logical and easy to follow.

Strongly agree ——————————— Strongly disagree ☐ Unsure

5.7 The Classification system and options were logical and relevant.

Strongly agree ——————————— Strongly disagree ☐ Unsure

Section 7. Further Comments

If you wish to make further comments, regarding any aspect of the PROMISe Pilot Study, or any aspect of the software or training, please use the space below.

If you would rather that these comments be treated anonymously, please separate this sheet from the rest of the survey and return it in the second reply paid envelope attached

**********End of Survey**********

Thank you for your time

****The following section was only included in those 31 pharmacies which had had exposure to the Aspirin drug alert**

Section 6 The aspirin drug alert

The drug alert provided information to pharmacists about aspirin therapy in patients with diabetes mellitus.

6.1 My *initial* reaction to the pop-up was that it was an intrusion.

6.2 I ignored the pop-up as it was of low importance to me.

6.3 The message the pop-up attempted to convey was clear and easy to understand.

6.4I thought the *Pharmacist Information* was well-presented, useful and easy to understand.

6.5 I was concerned with the accuracy and evidence base of the information presented.

6.6 I considered the information in the *Patient Information Leaflet* to be useful for the patient.

6.7 I feel comfortable to contact a doctor on a patient's behalf to discuss the need for aspirin prophylaxis.

6.8 The pop-up message & associated material has increased my knowledge about aspirin & diabetes.

6.9 These types of pop-ups/drug alerts are useful.

6.10 Which ONE of the following is correct? The primary message of the pop-up was:

- ☐ Low-dose aspirin is indicated for all patients with diabetes.
- ☐ Low-dose aspirin is recommended for all patients with diabetes over the age of 50 years OR between 30 - 50 years with ONE or more CVD risk factors AND no contraindications to aspirin.
- ☐ Low-dose aspirin is recommended for all patients with diabetes over the age of 65 years with ONE or more CVD risk factors AND no contraindications to aspirin

9.13 Appendix 13: PROMISe Study Owner and Manager Questionnaire

The PROMISe project

The following questions include details about characteristics of your pharmacy.

All information provided will remain confidential.

Please mark in the appropriate box for each question and add details were requested

Section 1 About this pharmacy

1.1 The location of this pharmacy
- ❑ Medical Centre
- ❑ Local shopping centre (<25 shops)
- ❑ Major shopping centre (>25 shops)
- ❑ Strip
- ❑ Hospital
- ❑ Other (please specify)

_____

1.2 What is the approximate size of the pharmacy?
- ❑ <100 m^2
- ❑ 101-150 m^2
- ❑ 151-250 m^2
- ❑ 251-500 m^2
- ❑ >500 m^2

1.3 How long have the current owner(s) owned this pharmacy

_____years

1.4 When did this pharmacy become QCPP accredited?
- ❑ Before 1st Dec 1999
- ❑ 1st Dec 1999 to 31st Jan 2001
- ❑ 1st Feb 2001 to 31st Jan 2003
- ❑ 1st Feb 2003 to 31st Jan 2004
- ❑ After 1st Feb 2004
- ❑ Not yet accredited

1.5 Is the pharmacy part of a banner/brand group
- ❑ No
- ❑ Yes, if so which group

_____

1.6 How many hours and days per week is the pharmacy open

Total number of hours	
Number of days each week	

1.7 Does this pharmacy supply an aged care facility
- ❑ Yes
- ❑ No

1.8 For each of the following categories, how many FTE (full time equivalent) staff work in your pharmacy in an average week

	FTE
Pharmacists	
Graduate Pharmacists	
Dispensary Assistants	
Pharmacy Assistants	

1.9 On average how many prescriptions are dispensed per **week** by this pharmacy
- ❑ <400 scripts
- ❑ 400-750
- ❑ 750 - 1250
- ❑ 1250 - 2000
- ❑ >2000

1.10 Has this pharmacy employed a pre-registration pharmacist within the last two years
- ❑ Yes
- ❑ No

1.11 What proportion of non-pharmacist staff hold qualifications equivalent to or greater than Certificate II (Grade 2)
- ❑ None
- ❑ Less than 50%
- ❑ Half of the staff
- ❑ All or most of staff

1.12 In the 2003/04 financial year what was your estimated annual turnover ($)
- ❑ <1M
- ❑ 1M - 2M
- ❑ 2-3M
- ❑ 3-4M
- ❑ >5M

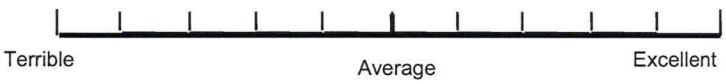
1.13 The ownership of the pharmacy
- ❑ Individual
- ❑ Partnership
- ❑ Corporate
- ❑ Franchise
- ❑ Other _____

1.14 Which of the following resources do you and your staff actively use in your pharmacy

Resource	Available used occasionally	Available used regularly (at least once a day)	Not currently available
Australian Medicines Handbook			
APF			
Pharmacy Self Care			
Martindale			
eMIMS			
eAPP			
eAMH			
Therapeutic Guidelines			
Internet based drug information			

1.15 How would you rate the quality of your current computer hardware

(eg screens, printers etc)



☐ Unsure

1.16 Which version of the Windows operating system do you currently use?

_____

Section 2 Enhanced services offered by this pharmacy

2.1 Services offered by this pharmacy

Please indicate which of the following professional services are currently provided by this pharmacy

Service	Yes provided	Is a fee charged for this service	Planning to implement	No
Blood pressure monitoring		Y/N		
Wound care				
Diabetes screening				
Weight management program				
Community Education				
Home medication reviews				

Section 3 Opinion based statements

Please rate your level of agreement with the following statements

3.1 This pharmacy is known for innovation among the pharmacies in the area

Strongly agree Strongly disagree ☐ Unsure

3.2 Five-year plans for this pharmacy are a high priority

Strongly agree Strongly disagree ☐ Unsure

3.3 It is our business strategy to avoid taking too many chances

Strongly agree Strongly disagree ☐ Unsure

3.4 Because conditions are changing we continually seek out new opportunities

Strongly agree Strongly disagree ☐ Unsure

3.5 Our actions towards competitors can be termed aggressively competitive

Strongly agree Strongly disagree ☐ Unsure

3.6 Ideas for new services in the pharmacy from staff are supported by the management team

Strongly agree Strongly disagree ☐ Unsure

3.7 The management team is closely able to predict the future needs of this business

Strongly agree Strongly disagree ☐ Unsure

3.8 There has been little change in our pharmacy over the last ten years

Strongly agree Strongly disagree ☐ Unsure

3.9 The majority of staff in this pharmacy have worked here for more than 5 years

Strongly agree Strongly disagree ☐ Unsure

3.10 If there were a risky new project or service this pharmacy would be prepared to take it on

Strongly agree Strongly disagree ☐ Unsure

3.11 At this pharmacy it is primarily the management team who identify new business opportunities

Strongly agree Strongly disagree ☐ Unsure

3.12This pharmacy and management encourages the development of innovative services

Strongly agree Strongly disagree ☐ Unsure

3.13 We are aware and responsive to changes that other pharmacies in our area make

Strongly agree Strongly disagree ☐ Unsure

3.14 At our pharmacy we are ambitious about the services we provide

Strongly agree Strongly disagree ☐ Unsure

3.15 The best way to ensure a healthy future for community pharmacy in Australia is to;

_____

_____

_____

_____

9.14 Appendix 14: PROMISe Study Consequences Table

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
1	nervous system	01.01	Seizures	01.01Mild	Mild one-off seizure unlikely to recur or require management	1	7	0.00	$0	2	$56			$104	$160		EEG
1	nervous system	01.01	Seizures	01.01Moderate	Requiring medical attention or modification of medication regimen	2	60	0.00	$0	4	$112			$122	$234		EEG, Bloods
1	nervous system	01.01	Seizures	01.01Severe	Severe seizures requiring hospitalisation and intravenous anticonvulsants	3	90	2.05	$1,606	2	$56	2	$192		$1,854	B76B Seizure	
1	nervous system	01.02	Headache	01.02Mild	Mild signs or symptoms which resolve without intervention	1	7	0.00	$0	0	$0				$0		
1	nervous system	01.02	Headache	01.02Moderate	Headache requiring oral analgesics and/or modification of medication regimen	2	30	0.00	$0	2	$56			$268	$324		Bloods, CT
1	nervous system	01.02	Headache	01.02Severe	Severe headache requiring acute medical management and hospitalisation	3	90	1.73	$1,280	4	$112				$1,392	B77Z Headache	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
1	nervous system	01.03	Pain	01.03Mild	Mild pain responding to currently prescribed agents	1	7	0.00	$0	2	$56				$56		
1	nervous system	01.03	Pain	01.03Moderate	Moderate pain requiring intensification of oral analgesics	2	30	0.00	$0	4	$112				$112		
1	nervous system	01.03	Pain	01.03Severe	Severe pain requiring management using specialist techniques or advice (e.g. hospitalisation, intravenous or epidural opioids or anaesthetics)	3	90	3.12	$2,952	4	$112	2	$192		$3,256	Average	
1	nervous system	01.04	CNS Depression	01.04Mild	Interfering with normal activities, but not requiring medical intervention	1	360	0.00	$0	0	$0				$0		
1	nervous system	01.04	CNS Depression	01.04Moderate	Requiring medical attention and interfering significantly with normal activities	2	90	0.00	$0	2	$56			$35	$91		Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
1	nervous system	01.04	CNS Depression	01.04Severe	Significant CNS depression resulting in loss of consciousness or obtundation	3	30	3.12	$2,952	4	$112				$3,064	Average	
2	eye	02.01	Glaucoma	02.01Mild	Mild elevation of IOP not requiring intervention	1	360	0.00	$0	0	$0				$0		
2	eye	02.01	Glaucoma	02.01Moderate	Moderate elevation of IOP requiring medical interventon	2	180	0.00	$0	1	$28	2		$192	$220		
2	eye	02.01	Glaucoma	02.01Severe	Severe glaucoma requiring acute medical or surgical intervention	3	90	3.12	$2,952	1	$28	3		$256	$3,236	Average	
4	respiratory system	04.01	Asthma	04.01Mild	Mild asthma which does not require additional intervention	1	360	0.00	$0	2	$56				$56		
4	respiratory system	04.01	Asthma	04.01Moderate	Moderate asthma requring medical attention and/or modification of medications	2	360	0.00	$0	6	$168			$18	$186		Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
4	respiratory system	04.01	Asthma	04.01Severe	Severe asthma requiring high level care in a hospital setting	3	360	3.59	$2,532	8	$224				$2,756	E69A,B,C	
4	respiratory system	04.02	Chronic Airways Disease	04.02Mild	Mild disease which does not require medical intervention	1	360	0.00	$0	1	$28				$28		
4	respiratory system	04.02	Chronic Airways Disease	04.02Moderate	Requiring medical intervention and/or modification of medication	2	360	0.00	$0	6	$168			$18	$186		Bloods
4	respiratory system	04.02	Chronic Airways Disease	04.02Severe	Severe disease requiring hospitalisation and medical intervention	3	360	6.66	$4,191	8	$224				$4,415	E65A,B	
4	respiratory system	04.03	Respiratory depression	04.03Mild	Mild respiratory depression which will resolve without medical intervention	1	7	0.00	$0	1	$28				$28		
4	respiratory system	04.03	Respiratory depression	04.03Moderate	Requiring medical intervention and/or modification of medications	2	14	0.00	$0	2	$56			$18	$74		Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
4	respiratory system	04.03	Respiratory depression	04.03Severe	Severe respiratory depression requiring hospitalisation and medical intervention	3	30	3.12	$2,952	2	$56				$3,008	Average	
5	circulatory system	05.01	Hypotensio n	05.01Mild	Clinical symptoms of hypotension not requiring medical intervention	1	90	0.00	$0	1	$28				$28		
5	circulatory system	05.01	Hypotensio n	05.01Moderate	Requiring medical attention and modification of antihypertensive therapy.	2	60	0.00	$0	4	$112				$112		
5	circulatory system	05.01	Hypotensio n	05.01Severe	Significant haemodynamic consequences requiring hospitalisation and intravenous fluid support.	3	30	3.12	$2,952	6	$168				$3,120	Average	
5	circulatory system	05.02	Hypertensio n	05.02Mild	Mild signs or symptoms which resolve without interventon	1	360	0.00	$0	1	$28				$28		

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
5	circulatory system	05.02	Hypertensio n	05.02Moderate	Moderate elevation of blood pressure requiring modification of or commencement of medical management	2	360	0.00	$0	8	$224			$18	$242		Bloods, Lipids
5	circulatory system	05.02	Hypertensio n	05.02Severe	Acute injury to target organs (e.g. renal, ocular or cerebral) requiring prompt medical management	3	90	3.65	$2,381	6	$168				$2,549	F67A,B	
5	circulatory system	05.03	Oedema	05.03Mild	Mild signs or symptoms which resolve without intervention	1	90	0.00	$0	1	$28				$28		
5	circulatory system	05.03	Oedema	05.03Moderate	Moderate oedema resulting in significant symptoms requiring medical management by modification of medication regimen	2	90	0.00	$0	6	$168			$18	$186		Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
5	circulatory system	05.03	Oedema	05.03Severe	Significant oedema resulting in severe symptoms and signs requiring hospitalisation and management with intravenous diuretics	3	30	6.16	$4,992	4	$112				$5,104	E64Z,	
5	circulatory system	05.04	Myocardial Ischaemia	05.04Mild	Mild signs or symptoms which resolve without intervention	1	360	0.00	$0	2	$56			$35	$91		Bloods
5	circulatory system	05.04	Myocardial Ischaemia	05.04Moderate	Moderate ischaemia resulting in significant signs and symptoms requiring medical management by modification of medication regimen (e.g. worsened stable angina)	2	360	1.60	$1,278	2	$56	2	$192		$1,526	F74Z	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
5	circulatory system	05.04	Myocardial Ischaemia	05.04Severe	Resulting in severe symptoms and signs requiring hospitalisation and medical management (e.g unstable angina, myocardial infarction)	3	360	4.75	$4,526	4	$112	2			$4,639	F41, A,B, F42A,B,F60A, B,C; F72A,B	
5	circulatory system	05.05	Cerebrovascular event	05.05Mild	Mild symptoms which resolve (e.g. transient ischemic attack)	1	30	0.00	$0	4	$112			$285	$397		Bloods, ?CAT
5	circulatory system	05.05	Cerebrovascular event	05.05Moderate	Resulting in significant signs and symptoms requiring medical management (e.g. reversible ischaemic neurological deficit)	2	180	6.31	$4,032	6	$168				$4,200	B69A,B,C	
5	circulatory system	05.05	Cerebrovascular event	05.05Severe	Resulting in severe symptoms and signs requiring hospitalisation and medical management (e.g stroke)	3	360	8.14	$6,257	8	$224				$6,481	B70A,B,C,D	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
5	circulatory system	05.06	Heart Failure	05.06Mild	Mild signs or symptoms which resolve without intervention	1	60	0.00	$0	2	$56			$35	$91		Bloods
5	circulatory system	05.06	Heart Failure	05.06Moderate	Resulting in significant signs and symptoms requiring medical management by modification of medication regimen	2	360	0.00	$0	8	$224			$35	$259		Bloods
5	circulatory system	05.06	Heart Failure	05.06Severe	Significant signs and symptoms requiring hospitalisation and medical management (e.g. acute pulmonary oedema)	3	360	7.58	$5,368	4	$112	2	$192	$35	$5,707	E64Z, F62A,B	
5	circulatory system	05.07	Arrhythmia	05.07Mild	Contributing to worsening of other cardiac conditions but not to such an extent as to require medical intervention	1	360	0.00	$0	2	$56			$44	$100		ECG, Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
5	circulatory system	05.07	Arrhythmia	05.07Moderate	Resulting in moderate haemodynamic or myocardial consequences requiring medical attention and treatment	2	180	0.00	$0	8	$224			$44	$268		ECG, Bloods
5	circulatory system	05.07	Arrhythmia	05.07Severe	Resulting in significant haemodynamic or myocardial complications requiring hospitalisation	3	180	4.10	$3,641	4	$112	2	$192		$3,945	F70A,B;F71A,B	
6	digestive system	06.01	Gastrointestinal bleeding	06.01Mild	Occult gastrointestinal bleeding likely to require medical management only if persistent	1	180	0.00	$0	1	$28			$1,748	$1,776		Bloods, endoscopy
6	digestive system	06.01	Gastrointestinal bleeding	06.01Moderate	Overt gastrointestinal bleeding requiring medical management	2	60	1.68	$1,199	1	$28	1	$128	$1,748	$3,103	G61B	Bloods, endoscopy

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
6	digestive system	06.01	Gastrointestinal bleeding	06.01Severe	Overt gastrointestinal bleeding with haemodynamic consequences requiring prompt medical management	3	90	3.58	$2,477	2	$56	2	$192		$2,725	G61A	
6	digestive system	06.02	Constipation	06.02Mild	Mild signs or symptoms likely to resolve without intervention	1	90	0.00	$0	0	$0				$0		
6	digestive system	06.02	Constipation	06.02Moderate	Requiring medical management and/or modification of medication regimen	2	30	0.00	$0	2	$56				$56		
6	digestive system	06.02	Constipation	06.02Severe	Requiring hospitalisation and medical and/or surgical management	3	60	4.49	$3,158	4	$112				$3,270	G65A,B	
6	digestive system	06.03	Gastrointestinal pain	06.03Mild	Mild signs or symptoms likely to resolve without intervention	1	180	0.00	$0	2	$56			$18	$74		Bloods
6	digestive system	06.03	Gastrointestinal pain	06.03Moderate	Requiring medical management and/or modification of medication regimen	2	180	0.00	$0	5	$140	1	$128	$1,748	$2,016		Endoscopy, Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
6	digestive system	06.03	Gastrointestinal pain	06.03Severe	Requiring prompt medical management and investigation	3	60	5.44	$3,628	1	$28	1	$128		$3,784	G67A	
6	digestive system	06.04	Nausea	06.04Mild	Mild signs or symptoms likely to resolve without intervention	1	7	0.00	$0	1	$28				$28		
6	digestive system	06.04	Nausea	06.04Moderate	Requiring medical management and/or modification of medication	2	14	0.00	$0	2	$56				$56		
6	digestive system	06.04	Nausea	06.04Severe	Requiring hospitalisation for significant vomiting-related electrolyte and hydration complications	3	30	3.12	$2,952	2	$56				$3,008	Average	
6	digestive system	06.05	Diarrhoea	06.05Mild	Mild signs or symptoms likely to resolve without intervention	1	7	0.00	$0	1	$28				$28		
6	digestive system	06.05	Diarrhoea	06.05Moderate	Requiring medical management and/or modification of medication	2	14	0.00	$0	2	$56				$56		

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
6	digestive system	06.05	Diarrhoea	06.05Severe	Requiring hospitalisation for significant vomiting-related electrolyte and hydration complications	3	30	3.12	$2,952	2	$56				$3,008	Average	
7	hepatobiliary system and pancreas	07.01	Liver Disease	07.01Mild	Mild liver disease likely to resolve without intervention	1	30	0.00	$0	2	$56				$56		
7	hepatobiliary system and pancreas	07.01	Liver Disease	07.01Moderate	Moderate liver disease requiring modification of medications and medical interventon	2	60	0.00	$0	7	$196	1	$128	$18	$342		Bloods
7	hepatobiliary system and pancreas	07.01	Liver Disease	07.01Severe	Severe liver disease requiring hospitalsation and acute medical management	3	90	6.70	$4,936	3	$84	1	$128		$5,148	H60A,B,C	
8	musculoskeletal system and connective tissue	08.01	Myopathy	08.01Mild	Mild musde pain not requiring intervention	1	90	0.00	$0	2	$56				$56		

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
8	musculoskeletal system and connective tissue	08.01	Myopathy	08.01Moderate	Moderate musde pain requiring modification of medications without elevation in creatine kinase	1	60	0.00	$0	4	$112			$59	$171		Bloods, CK
8	musculoskeletal system and connective tissue	08.01	Myopathy	08.01Severe	Severe myopathy with elevation of creatine kinase requiring cessation of medication	2	30	0.00	$0	6	$168			$59	$227		Bloods, CK
9	skin, subcutaneous tissue and breast	09.01	Rash	09.01Mild	Localised or mild symptoms which respond to "over the counter" treatment	1	15	0.00	$0	1	$28				$28		
9	skin, subcutaneous tissue and breast	09.01	Rash	09.01Moderate	Requiring medical attention and topical and/or oral systemic reatment	2	60	0.00	$0	2	$56				$56		
9	skin, subcutaneous tissue and breast	09.01	Rash	09.01Severe	Widespread rash with significant consequences requiring hospitalisation and intravenous systemic treatment	3	180	3.44	$2,166	4	$112				$2,278	J61Z	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
10	endocrine, nutritional and metabolic	10.01	Diabetes	10.01Mild	Reduced control of disease requiring increased monitoring	1	360	0.00	$0	4	$112			$18	$130		Bloods
10	endocrine, nutritional and metabolic	10.01	Diabetes	10.01Moderate	Requiring modification of treatment regimen or significant complications requiring medical management	2	360	0.00	$0	6	$168			$18	$186		Bloods
10	endocrine, nutritional and metabolic	10.01	Diabetes	10.01Severe	Complications of diabetes requiring specialist medical attention in hospital	3	360	5.78	$4,063	6	$168	2			$4,231	K60A,B	
10	endocrine, nutritional and metabolic	10.02	Osteoporosis	10.02Mild	Worsening of disease requiring increased monitoring	1	360	0.00	$0	4	$112			$83	$195		Bone Densitometry item 12306-12301, Bloods
10	endocrine, nutritional and metabolic	10.02	Osteoporosis	10.02Moderate	Requiring modification of existing treatment regimen (e.g commencing treatment for an "at risk" person)	2	60	0.00	$0	6	$168			$83	$251		Bone Densitometry item 12306-12301, Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
10	endocrine, nutritional and metabolic	10.02	Osteoporosis	10.02Severe	Resulting in hospitalisation due to a major complication (e.g. fracture)	3	90	10.76	$7,317	8	$224				$7,541	I60Z;I61Z;I62A,B	
10	endocrine, nutritional and metabolic	10.03	Hypercalcaemia	10.03Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	1	$28				$28		
10	endocrine, nutritional and metabolic	10.03	Hypercalcaemia	10.03Moderate	Requiring medical management and/or modification of medication regimen	2	60	0.00	$0	2	$56			$18	$74		Bloods
10	endocrine, nutritional and metabolic	10.03	Hypercalcaemia	10.03Severe	Requiring prompt medical management and investigation	3	90	3.12	$2,952	3	$84				$3,036	Average	
10	endocrine, nutritional and metabolic	10.04	Hypocalcaemia	10.04Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	1	$28				$28		
10	endocrine, nutritional and metabolic	10.04	Hypocalcaemia	10.04Moderate	Requiring medical management and/or modification of medication regimen	2	60	0.00	$0	2	$56			$18	$74		Bloods
10	endocrine, nutritional and metabolic	10.04	Hypocalcaemia	10.04Severe	Requiring prompt medical management and investigation	3	90	3.12	$2,952	3	$84				$3,036	Average	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
10	endocrine, nutritional and metabolic	10.05	Hyperkalaemia	10.05Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	1	$28				$28		
10	endocrine, nutritional and metabolic	10.05	Hyperkalaemia	10.05Moderate	Requiring medical management and/or modification of medication regimen	2	60	0.00	$0	2	$56			$18	$74		Bloods
10	endocrine, nutritional and metabolic	10.05	Hyperkalaemia	10.05Severe	Requiring prompt medical management and investigation (e.g. palpitations, bradycardia)	3	90	3.12	$2,952	3	$84				$3,036	Average	
10	endocrine, nutritional and metabolic	10.06	Hypothyroidism	10.06Mild	Requiring medical management by modification of medication regimen	1	30	0.00	$0	1	$28				$28		
10	endocrine, nutritional and metabolic	10.06	Hypothyroidism	10.06Moderate	Requiring medical management and/or modification of medication regimen	2	60	0.00	$0	2	$56			$18	$74		Bloods
10	endocrine, nutritional and metabolic	10.06	Hypothyroidism	10.06Severe	Mild signs or symptoms likely to resolve without intervention	3	90	3.12	$2,952	3	$84				$3,036	Average	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
10	endocrine, nutritional and metabolic	10.07	Hypoglycaemia	10.07Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	1	$28				$28		
10	endocrine, nutritional and metabolic	10.07	Hypoglycaemia	10.07Moderate	Requiring additional oral medical management or modification of medication regimen	2	60	0.00	$0	2	$56			$18	$74		Bloods
10	endocrine, nutritional and metabolic	10.07	Hypoglycaemia	10.07Severe	Requiring intravenous management	3	90	3.12	$2,952	3	$84				$3,036	Average	
10	endocrine, nutritional and metabolic	10.08	Hypokalaemia	10.08Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	1	$28				$28		
10	endocrine, nutritional and metabolic	10.08	Hypokalaemia	10.08Moderate	Requiring medical management and/or modificaton of medication regimen	2	60	0.00	$0	2	$56			$18	$74		Bloods
10	endocrine, nutritional and metabolic	10.08	Hypokalaemia	10.08Severe	Requiring prompt medical management and investigation (e.g. palpitations, tachycardia)	3	90	3.12	$2,952	3	$84				$3,036	Average	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, OMBS as at 1 Nov 2004)
11	kidney and urinary	11.01	Urinary retention	11.01Mild	Symptomatic, but not requiring medical management	1	30	0.00	$0	1	$28				$28		
11	kidney and urinary	11.01	Urinary retention	11.01Moderate	Requiring medical management	2	60	0.00	$0	2	$56			$18	$74		?IVP, Bloods
11	kidney and urinary	11.01	Urinary retention	11.01Severe	Requiring catheterisation	3	90	2.66	$2,949	4	$112				$3,061	L08A,B	
11	kidney and urinary	11.02	Urinary Incontinence	11.02Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	1	$28				$28		
11	kidney and urinary	11.02	Urinary Incontinence	11.02Moderate	Requiring medical management and/or modification of medication regimen	2	60	0.00	$0	2	$56				$56		
11	kidney and urinary	11.02	Urinary Incontinence	11.02Severe	Requiring hospitalisation and medical and/or surgical management	3	90	3.12	$2,952	3	$84				$3,036	Average	
11	kidney and urinary	11.03	Renal Dysfunction	11.03Mild	Mild signs or symptoms which resolve without intervention	1	90	0.00	$0	2	$56				$56		

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11	kidney and urinary	11.03	Renal Dysfunction	11.03Moderate	Requiring medical management and/or modification of medication regimen	2	180	0.00	$0	5	$140	1	$128	$18	$286		Bloods
11	kidney and urinary	11.03	Renal Dysfunction	11.03Severe	Acute decline in renal function requiring prompt medical management and investigation	3	360	7.26	$5,614	6	$168	2	$192		$5,974	L60A,B,C	
13	female reproductive system	13.01	Contraceptive Failure	13.01Mild	Interference with contraceptive efficacy not requiring additional contraceptive precautions	1	5	0.00	$0	1	$28				$28		
13	female reproductive system	13.01	Contraceptive Failure	13.01Moderate	Interference with contraceptive efficacy that requires additional contraceptive methods be used	2	30	0.00	$0	1	$28				$28		
13	female reproductive system	13.01	Contraceptive Failure	13.01Severe	Total contraceptive failure resulting in undesired pregnancy	3	30	2.00	$2,466	2	$56				$2,522	040Z	

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
14	pregnancy, childbirth and puerperium	14.01	Birth Defect	14.01Mild	Minor birth defect that does not affect the newborn	1	30	0.00	$0	1	$28				$28		
14	pregnancy, childbirth and puerperium	14.01	Birth Defect	14.01Moderate	Birth defect not affecting course of pregnancy but resulting in damage to the newborn	2	60	0.00	$0	2	$56				$56		
14	pregnancy, childbirth and puerperium	14.01	Birth Defect	14.01Severe	Severe birth defect requiring termination of pregnancy	3	90	2.00	$2,466	4	$112				$2,578	040Z	
16	blood and blood forming organs and immunologic al disorders	16.01	Anaemia	16.01Mild	Mild signs or symptoms which resolve without intervention	1	90	0.00	$0	2	$56			$18	$74		Bloods
16	blood and blood forming organs and immunologic al disorders	16.01	Anaemia	16.01Moderate	Requiring medical management and/or modification of medication regimen	2	90	0.00	$0	3	$84			$18	$102		Bloods
16	blood and blood forming organs and immunologic al disorders	16.01	Anaemia	16.01Severe	Requiring hospitalisation and blood product or growth factor support	3	90	4.58	$3,144	3	$84	1	$128		$3,356	Q61A,B.,C	

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16	blood and blood forming organs and immunologic al disorders	16.02	Bone marrow suppression	16.02Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	2	$56			$18	$74		Bloods
16	blood and blood forming organs and immunologic al disorders	16.02	Bone marrow suppression	16.02Moderate	Requiring medical management by modification of existing medication regimen	2	60	0.00	$0	4	$112			$18	$130		Bloods
16	blood and blood forming organs and immunologic al disorders	16.02	Bone marrow suppression	16.02Severe	Requiring hospitalisation and blood product or growth factor support	3	90	8.30	$9,359	4	$112	2	$192		$9,663		
16	blood and blood forming organs and immunologic al disorders	16.03	Bleeding, non-specific	16.03Mild	Mild elevation of INR not requiring adjustment of dosage	1	30	0.00	$0	1	$28				$28		
16	blood and blood forming organs and immunologic al disorders	16.03	Bleeding, non-specific	16.03Moderate	Moderate elevation of INR requiring modification of dose of anticoagulant	2	60	0.00	$0	2	$56			$18	$74		Bloods

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
16	blood and blood forming organs and immunological disorders	16.03	Bleeding, non-specific	16.03Severe	Severe bleeding requiring hospitalisation, blood product and/or haemodynamic support	3	90	3.12	$2,952	2	$56	1	$128		$3,136	Average	
16	blood and blood forming organs and immunological disorders	16.04	Allergic reaction	16.04Mild	Mild reaction not requiring intervention	1	15	0.00	$0	1	$28				$28		
16	blood and blood forming organs and immunological disorders	16.04	Allergic reaction	16.04Moderate	Moderate allergic reaction requiring topical or oral medications	2	30	0.00	$0	2	$56				$56		
16	blood and blood forming organs and immunological disorders	16.04	Allergic reaction	16.04Severe	Severe allergic reaction requiring acute medical management	3	60	1.32	$1,238	2	$56				$1,294	Z61Z	
18	infectious and parasitic diseases	18.01	Infection, general	18.01Mild	Mild signs or symptoms which resolve without intervention	1	15	0.00	$0	1	$28				$28		

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
18	infectious and parasitic diseases	18.01	Infection, general	18.01Moderate	Moderate complications requiring medical attention and oral antibiotics	2	30	0.00	$0	2	$56			$34	$90		MCS
18	infectious and parasitic diseases	18.01	Infection, general	18.01Severe	Requiring hospitalisation and intravenous antibiotics	3	30	7.84	$5,946	2	$56				$6,002	E62A,B,C;T60 A,B	
18	infectious and parasitic diseases	18.02	Urinary Tract Infection	18.02Mild	Mild signs or symptoms which resolve without intervention	1	15	0.00	$0	1	$28				$28		
18	infectious and parasitic diseases	18.02	Urinary Tract Infection	18.02Moderate	Moderate complications requiring medical attention and oral antibiotics	2	30	0.00	$0	2	$56			$34	$90		MCS
18	infectious and parasitic diseases	18.02	Urinary Tract Infection	18.02Severe	Requiring hospitalisation and intravenous antibiotics	3	30	6.26	$3,920	2	$56				$3,976	L63A,B,C	
18	infectious and parasitic diseases	18.03	Otitis Media	18.03Mild	Mild signs and symptoms that will resolve without medical intervention	1	15	0.00	$0	1	$28				$28		

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
18	infectious and parasitic diseases	18.03	Otitis Media	18.03Moderate	Requiring medical intervention and/or modification of medications	2	30	0.00	$0	2	$56				$56		
18	infectious and parasitic diseases	18.03	Otitis Media	18.03Severe	Severe otitis media requiring hospitalisation and intravenous antibiotic management	3	30	2.32	$1,932	2	$56				$1,988	D63A,B	
18	infectious and parasitic diseases	18.04	Ophthalmic Herpes	18.04Mild	Mild signs or symptoms likely to resolve without medical intervention	1	30	0.00	$0	2	$56				$56		
18	infectious and parasitic diseases	18.04	Ophthalmic Herpes	18.04Moderate	Requiring medical management and/or modification of medications	2	30	0.00	$0	2	$56				$56		
18	infectious and parasitic diseases	18.04	Ophthalmic Herpes	18.04Severe	Severe ocular infection requiring hospitalisation and intravenous management	3	30	5.91	$3,864	0	$0	2	$192		$4,056	C60A,B	
19	mental diseases and disorders	19.01	Psychosis	19.01Mild	Mild signs or symptoms which resolve without intervention	1	180	0.00	$0	1	$28				$28		

MDC Code	MDC heading	Sub-group Code	Subgroup	Sub-Group Severity Code	Subgroup Severity Description	Health Status Impact	Duration of Health Status Impact	Duration of Admission	Cost of Admission	Number of GP Consults	Cost of GP Consult	Number of Specialist Consults	Cost of Specialist Consults	Investigation or Other Cost (if not included in DRG cost)	Total Direct Costs	Admission Cost and Duration Source (National Hospital Cost Weights for AR-DRG Version 4.2, 2002-3)	Investigation or Other Cost Notes (Schedule Fee, CMBS as at 1 Nov 2004)
19	mental diseases and disorders	19.01	Psychosis	19.01Moderate	Worsening of disease requiring modification of treatment regimen	2	180	0.00	$0	2	$56				$56		
19	mental diseases and disorders	19.01	Psychosis	19.01Severe	Destabilisation or unmasking of psychosis requiring specialist medical attention	3	360	10.89	$7,491	0	$0	4	$320		$7,811	U62A,B	
19	mental diseases and disorders	19.02	Anxiety	19.02Mild	Mild signs or symptoms which resolve without intervention	1	30	0.00	$0	2	$56				$56		
19	mental diseases and disorders	19.02	Anxiety	19.02Moderate	Worsening of disease requiring modification of existing treatment regimen	2	90	0.00	$0	4	$112				$112		
19	mental diseases and disorders	19.02	Anxiety	19.02Severe	Requiring specialist medical attention	3	180	4.03	$2,595	4	$112	2	$192		$2,899	U65Z	
19	mental diseases and disorders	19.03	Serotonin Syndrome	19.03Mild	Mild signs or symptoms which resolve without intervention	1	14	0.00	$0	1	$28				$28		

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19	mental diseases and disorders	19.03	Serotonin Syndrome	19.03Moderate	Requiring medical management and/or modification of medication regimen	2	30	0.00	$0	2	$56				$56		
19	mental diseases and disorders	19.03	Serotonin Syndrome	19.03Severe	Requiring prompt medical management and investigation (e.g euphoria, tremor, severe anxiety, palpitations)	3	30	0.00	$0	2	$56			$18	$74		Bloods
19	mental diseases and disorders	19.04	Depression	19.04Mild	Mild signs or symptoms which resolve without intervention	1	180	0.00	$0	4	$112				$112		
19	mental diseases and disorders	19.04	Depression	19.04Moderate	Worsening of disease requiring modification of treatment regimen	2	180	0.00	$0	5	$140	1	$128		$268		
19	mental diseases and disorders	19.04	Depression	19.04Severe	Destabilisation or unmasking of depression requiring specialist medical attention	3	360	12.45	$7,192	6	$168	2	$192		$7,553	U63A,B; U64Z	Psych Assessemnt